EDISON
Electric Institute
BULLETIN

MAY, 1935

STATISTICAL DATA OF THE ELECTRIC LIGHT AND POWER INDUSTRY

Compiled Monthly by the Edison Electric Institute—Covers 100% of the Industry

DURING THE MONTH OF FEBRUARY—PRELIMINARY

	1935	1934	%
Kilowatt-hours Generated* (net)			
By Fuel	4,233,544,000	4,441,940,000	− 4.7
By Water Power	2,735,557,000	2,069,633,000	+32.2
Total Kilowatt-hours Generated	6,969,101,000	6,511,573,000	+ 7.0
Additions to Supply			
Energy Purchased from Other Sources	167,090,000	200,002,000	−16.5
Net International Imports	78,071,000	73,458,000	+ 6.3
Total	245,161,000	273,460,000	−10.3
Deductions from Supply			
Energy Used in Electric Railway Departments	59,686,000	65,101,000	− 8.3
Energy Used in Electric and Other Departments	106,081,000	111,576,000	− 4.9
Total	165,767,000	176,677,000	− 6.2
Total Energy for Distribution	**7,048,495,000**	**6,608,356,000**	**+ 6.7**
Energy Lost in Transmission, Distribution, etc.	**854,684,000**	**842,440,000**	**+ 1.5**
Kilowatt-hours Sold to Ultimate Consumers	**6,193,811,000**	**5,765,916,000**	**+ 7.4**
Sales to Ultimate Consumers (kw-hrs)			
Domestic Service	1,211,438,000	1,122,776,000	+ 7.9
Commercial—Small Light and Power (Retail)	1,164,101,000	1,085,323,000	+ 7.3
Commercial—Large Light and Power (Wholesale)	3,102,791,000	2,831,491,000	+ 9.6
Municipal Street Lighting	212,900,000	201,970,000	+ 5.4
Railroads—Street and Interurban	391,263,000	388,024,000	+ 0.8
Railroads—Electrified Steam	62,049,000	61,594,000	+ 0.7
Municipal and Miscellaneous	49,269,000	74,738,000	−34.1
Total Sales to Ultimate Consumers	6,193,811,000	5,765,916,000	+ 7.4
Total Revenue from Ultimate Consumers	$162,469,900	$154,831,700	+ 4.9

DURING TWELVE MONTHS ENDING FEBRUARY 28th

Kilowatt-hours Generated* (net)			
By Fuel	53,442,538,000	49,123,308,000	+ 8.8
By Water Power	32,224,871,000	31,131,464,000	+ 3.5
Total Kilowatt-hours Generated	85,667,409,000	80,254,772,000	+ 6.7
Purchased Energy (net)	2,971,020,000	3,091,036,000	− 3.9
Energy Used in Electric Railway and Other Departments	2,002,811,000	1,912,953,000	+ 4.7
Total Energy for Distribution	86,635,618,000	81,432,855,000	+ 6.4
Energy Lost in Transmission, Distribution, etc.	**14,868,021,000**	**14,401,305,000**	**+ 3.2**
Kilowatt-hours Sold to Ultimate Consumers	**71,767,597,000**	**67,031,550,000**	**+ 7.1**
Total Revenue from Ultimate Consumers	$1,852,714,800	$1,780,270,000	+ 4.1
Important Factors			
Percent of Energy Generated by Waterpower	37.6%	38.8%	
Average Pounds of Coal per Kilowatt-hours	1.44#	1.45#	
Domestic Service (Residential Use)			
Average Annual Consumption per Customer (kw-hr)	637	607	+ 4.9
Average Revenue per kw-hr (Cents)	5.26¢	5.46¢	− 3.7
Average Monthly Bill per Domestic Customer	$2.79	$2.76	+ 1.1

BASIC INFORMATION AS OF FEBRUARY 28th

Generating Capacity (kw)—Steam	23,765,900	23,986,500	
—Waterpower	8,952,100	9,007,100	
—Internal Combustion	500,800	461,900	
Total Generating Capacity in Kilowatts	33,218,800	33,455,500	
Number of Customers			
Farms in Eastern Area (Included with Domestic)	(534,849)	(504,957)	
Farms in Western Area (Included with Commercial—Large)	(209,957)	(205,423)	
Domestic Service	20,503,594	20,067,553	
Commercial—Small Light and Power	3,736,939	3,683,964	
Commercial—Large Light and Power	499,560	521,696	
Other Ultimate Consumers	69,681	67,220	
Total Ultimate Consumers	24,809,774	24,340,433	

* By courtesy of the U. S. Geological Survey with deductions for certain plants not considered Electric Light and Power Enterprises.

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EDISON ELECTRIC INSTITUTE BULLETIN

Volume III MAY, 1935 No. 5

Heavy Attendance Expected at the Convention

Program to Have Subjects of Paramount Interest to the Industry and Its Customers and Stockholders

A HEAVY attendance is expected at the Institute's Third Annual Convention, to be held at the Hotel Traymore, Atlantic City, N. J., June 3-6. Utility companies in the East will send large delegations, and the advance hotel registrations from more distant sections of the country indicate that the West, South and North will be well represented at this annual meeting of the electric light and power industry.

The Convention program has been carefully designed to present subjects of paramount interest and value to the industry and its customers and stockholders. The emphasis on most of the addresses and papers will be on those phases of utility operation and competition that are of direct public concern. Maximum economy in system design consistent with adequate and reliable service, governmental competition in its various ramifications, and the present and potential effects of political harassment of the utilities, the building and holding of good-will, and successful utility sales promotion in both its broad principles and its specialized applications, will have predominant places on the program, together with other matters of vital importance. Even the papers on matters generally regarded only from their purely technical aspects will deal with the economic and social factors involved as well as with their engineering features.

The speakers will be authorities in their fields, who have been selected for their outstanding qualifications gained by long experience, practical understanding and, in the case of the utility men, successful operation of public utilities.

A number of prominent men from other fields will give their points of view on the electrical industry and related subjects. Included in the guest speakers are: Merle Thorpe, editor of *The Nation's Business;* Stewart McDonald, acting administrator of the Federal Housing Administration, and Major Ezra B. Whitman, consulting engineer of Baltimore and former chairman of the Maryland Public Service Commission.

The Institute's officers who will speak at the Convention are: President Thomas N. McCarter, Vice-president and Managing Director Bernard F. Weadock, and Treasurer Edward Reynolds, Jr.

Included among those of the electric light and power industry scheduled to appear on the program are: Messrs. C. E. Michel, Union Electric Light and Power Co.; G. C. Estill, president, Florida Power and Light Co.; H. P. J. Steinmetz, chairman, Sales Committee, E. E. I.; Frank McLaughlin, president, Puget Sound Power and Light Co.; J. F. Owens, president, Oklahoma Gas and Electric Co.; W. H. Burke, Electric Bond and Share Co.; N. E. Funk, vice-president, Philadelphia Electric Company; Paul M. Downing, vice-president and general manager, Pacific Gas and Electric Company; W. E. Mitchell, Georgia Power Company; H. R. Woodrow, vice-president, Brooklyn Edison Co., Inc.; Marion Penn, Public Service Electric & Gas Company; A. D. Bailey, Commonwealth Edison Company; A. H. Kehoe, vice-president, New York Edison Company; F. S. Clark, The Edison Electric Illuminating Company of Boston; J. M. Drabelle,

The Hotel Traymore, Atlantic City

Iowa Electric Light and Power Company; J. C. Guild, Jr., president, Tennessee Electric Power Company; Frank W. Smith, president, The New York Edison Company; Frank A. Newton, chairman, Rate Research Committee, E. E. I.; H. W. Fuller, vice-president, Byllesby Engineering & Management Corp.; Hudson W. Reed, The United Gas Improvement Company; H. C. Couch, president, Arkansas Power and Light Company; Col. William Kelly, Buffalo; Niagara and Eastern Power Corp.; P. H. Powers, vice-president, West Penn Power Company; E. C. Easter, Alabama Power Company.

Messrs. P. B. Zimmermann, General Electric Company, and Samuel G. Hibben, Director of Applied Lighting, Westinghouse Lamp Company, will address the Convention on certain phases of load building.

The five general sessions of the Convention will be open to all those who wish to attend, regardless of membership in the Institute, registration at the desk being the only requirement for admission. The programs for the four sessions to be held in the daytime, that is on Monday morning, June 3, and Monday afternoon and Tuesday and Wednesday mornings have been completed. Summaries of these sessions are given on this and the next page. The program for the Wednesday evening session, which will be featured with an address by a distinguished speaker of national reputation, had not been completed as this issue goes to press.

Since many delegates to the Convention will bring their families, a card party for the ladies will be held at the Seaview Golf Club at Absecon, N. J., on Monday afternoon, June 3. It is hoped that all ladies attending the Convention will participate in this event, at which special prizes and other favors will be distributed. Arrangements have also been made for dancing each evening in the capacious American Dining Room of the Traymore, where excellent music will be provided. Delegates to the Convention and their guests, as at former conventions, may secure courtesy cards putting at their disposal the facilities of the Seaview Golf Club.

As was the case last year all meetings of the Convention will be held in the Traymore Hotel, where a large hall will be provided by the hotel for the general sessions, as will be also smaller rooms for the conferences of the Institute committees planning to hold meetings during the Convention. No meetings of the five engineering committees are planned, but the Board of Trustees, the Operating Committee and perhaps several of the other committees will hold special meetings during the Convention period. Members of the committees that will hold meetings will be notified by letter of the time and place.

Members of the Institute staff and others officially connected with the Convention will be at the service of Convention delegates in every way possible. Every effort will be made to provide for the convenience and pleasure of those attending, while hotel men and others at the resort city will strive to make the stay of the delegates and their families enjoyable.

The PROGRAM

First General Session

Beginning promptly at 10 o'clock, Monday morning, June 3, the first general session will be devoted exclusively to sales and merchandising problems of the industry. Opening this session Mr. H. P. J. Steinmetz, Public Service Electric and Gas Company, Chairman of the Sales Committee, E.E.I., will report on the activities and progress of the Committee during the administrative year.

Following Mr. Steinmetz, Mr. C. E. Michel, Sales Manager of the Union Electric Light and Power Company, St. Louis, and Mr. G. C. Estill, President, Florida Power and Light Company will have "Sales Programs" as their general subject, and will discuss in particular the activities of their own companies in sales promotion.

Next on the program is Mr. Stewart McDonald, Acting Administrator of the Federal Housing Administration who will tell of the Advantages to Be Gained by the Utility Through the Better Housing Program.

The manufacturers contribution to this session will be two addresses on subjects having unlimited potentialities for increasing consumption of electricity. The first will be given by Mr. P. B. Zimmermann of the General Electric Company who will discuss the Electric Kitchen As a Load Builder and the second by Mr. Samuel G. Hibben, Director of Applied Lighting, Westinghouse Lamp Company, who will tell of New Business Horizons Through Vapor Illuminants.

Second General Session

The second general session will begin at 2.30 p. m., Monday, June 3. Mr. Bernard F. Weadock, Vice-President and Managing Director of the Institute, will appear first on this program with a summation of the findings of the Federal Trade Commission in its utility investigation. Mr. Weadock, it is perhaps needless to mention, has represented the utilities as general counsel on the investigation during the course of the hearings which have continued through the past seven years.

A paper by Mr. Frank McLaughlin, President, Puget Sound Power and Light Company, Seattle, on Building Good Will will follow Mr. Weadock's talk. Mr. McLaughlin's company has been notably successful in its public relations and merchandising programs and this contribution from one of the industry's most progressive younger executives will doubtless contain much sound information of practical value. Mr. J. F. Owens, President, Oklahoma Gas and Electric Company and Mr. W. H. Burke, Electric Bond and Share Company, will discuss Mr. McLaughlin's paper.

The development by theorists of construction costs purporting to show how cheaply power supply facilities could be built has been a fruitful source for criticism of the utilities. Usually the costs developed are attained by the assumption of very primitive construction, the service from which would not be tolerated by present-day customers. In a paper dealing with the Effect of Service Standards of System Design, Mr. N. E. Funk, Vice-President, Philadelphia Electric Company, will discuss the fallacies of this school of theorists and define the major requirements of acceptable economic service.

Messrs. Paul M. Downing, Vice-President and General Manager, Pacific Gas and Electric Company, W. E. Mitchell, Vice-President and General Manager. Georgia Power Company, and H. R. Woodrow, Vice-President, Brooklyn Edison Company, Inc., are scheduled to discuss Mr. Funk's paper.

A paper by Mr. Marion Penn, General Manager, Public Service Electric and Gas Company, on Plant Modernization will deal primarily with the improvement of existing plants, showing that a large percentage of present capacity can be brought to a high state of efficiency by various means.

This session will be concluded with a discussion of Mr. Penn's paper. Invited to discuss it are: Messrs. A. D. Bailey, Commonwealth Edison Company, A. H. Kehoe, Vice-President, The New York Edison Company, F. S. Clark, The Edison Electric Illuminating Company of

Boston and J. M. Drabelle, Iowa Electric Light and Power Company.

Third General Session

Beginning at 10 a. m., Tuesday morning, with a report from Mr. Edward Reynolds, Treasurer, on the finances of the Institute, this session will be featured by the presidential address of Mr. McCarter, addresses by Messrs. Merle Thorpe, Editor, The Nation's Business, and Jo C. Guild, Jr., President, Tennessee Electric Power Company, and the report of Mr. Frank W. Smith, Chairman of the Prize Awards Committee.

Mr. McCarter's address will cover not only the activities and accomplishments of the Institute during his term of office but will also contain observations and recommendations of broadest importance.

As editor of the country's foremost business magazine, Mr. Thorpe has the breadth of view and the wide knowledge that will enable him to present authoritative information on the long range effect of the new deal policies in the field of business.

Mr. Guild's company has made a phenomenal record in sales building. His address will treat of the Acceleration of Sales Programs, with particular reference to the experience of his own company.

Presentation of the several prize awards administered by the Institute's Prize Awards Committee will be made by Mr. Frank W. Smith, Chairman of the Committee, who will also report on the activities of the Committee. The Awards include the Charles A. Coffin Award; the H. M. Byllesby Prizes; the Forbes Prize; the A. L. Lindemann Prizes; the Thomas W. Martin Award; the James H. McGraw Prizes and the George A. Hughes Award.

Fourth General Session

This session will begin at 10 a. m. Wednesday morning. After the report of the nominating committee and the election of the Trustees of the Institute, Mr. Frank A. Newton, Chairman of the Rate Research Committee, will present the report of his committee. The report will cover the rate situation nationally, and give specific data on the experience of different companies with the various types of promotional rates. Discussion from the floor will follow this report.

Subsidized Electric Plants will be the subject of the address by Mr. H. W. Fuller, Vice-President, Byllesby Engineering and Management Corporation. As its title indicates, it will deal largely with recent trends in governmental competition and governmental encouragement of municipal plants.

An extensive study of the Tennessee Valley Authority, with particular reference to the rates of the T.V.A., the excess capacity in the T.V.A. region, and the economic situation of possible consumers in the T.V.A. area has been made by Major Ezra B. Whitman, Consulting Engineer of Baltimore, and former Chairman of the Maryland Public Service Commission. His address on T.V.A. Rates and How They Were Made will present interesting information on this and other phases of T.V.A. activities.

The great emphasis now being placed by the government on rural electrification has created and circulated a tremendous amount of misinformation on this subject. Mr. Hudson W. Reed, The United Gas Improvement Company, is a member of a special committee that has done intensive research on rural electrification, and at the request of certain governmental agencies has held several discussions with them on this problem. Mr. Reed's address will cover the basic information developed by the special committee, and constitute an informal report on the conferences with the governmental agencies.

Messrs. H. C. Couch, President, Arkansas Power and Light Company; Col. William Kelly, President, Buffalo, Niagara and Eastern Power Corp.; P. H. Powers, Vice-President, West Penn Power Company, and E. C. Easter, Alabama Power Company, have been invited to discuss Mr. Reed's paper.

GENERAL INFORMATION ON THE THIRD ANNUAL CONVENTION

The convention headquarters will be located at the Hotel Traymore, on the Boardwalk. Morning sessions will convene promptly at 10 a. m., daylight saving time, and will adjourn at 1 p. m. The Monday afternoon session will convene at 2:30 p. m. and adjourn at 5:30 p. m. The Wednesday evening session will convene at 8:30 p. m.

Registration and railroad ticket validating booths will be located on the main lobby floor of the Hotel Traymore adjacent to the meeting room. There will be no charge for registration, but registration is necessary to obtain the Convention badge. The registration booth will be open on Sunday, June 2, from 2:30 p. m. until 5 p. m. On Monday, June 3, the booth will be open from 8:45 a. m. until 5:30 p. m., and on Tuesday and Wednesday from 8:45 a. m. until 5 p. m.

Recreation

On Monday, June 3, a card party will be held at the Seaview Golf Club, Absecon, N. J., for the ladies attending the Convention. Buses will leave the Hotel Traymore promptly at 2:30 p. m. for the Club, returning about 6 p. m. There will be tables for cards, and for those who do not play cards, games will be provided. Prizes will be offered at each table, and for the games. There will be dancing each evening in the American Dining Room, main lobby of the hotel.

Hotels

A circular giving rates and locations of the principal Atlantic City hotels, together with a reservation blank has been sent to all members of the Institute. Reservations should be sent direct to hotel of first choice.

Transportation

The Passenger Associations have authorized on the Identification Certificate Plan a reduced rate of a fare and a third for the round trip, from all points in the United States and Canada, with return limit of 30 days from date of sale. Only one Identification Certificate will be necessary for a delegate and dependent members of his family. To secure the reduced fare Identification Certificate must be presented and signed when purchasing round-trip ticket to Atlantic City. Delegates should be prepared to identify themselves to the ticket agent. Routing, both ways, must be specified when purchasing tickets. The return route may differ from the going route. No change in routing will be allowed after the trip is started. Far Western delegates may find the summer tourist rates of advantage.

All railroad tickets must be validated before leaving Atlantic City by the ticket agent at the Registration Booth in the main lobby of the Hotel Traymore or at regular ticket offices in Atlantic City.

Additional Identification Certificates and hotel information may be secured from the general office of the Institute, 420 Lexington Avenue, New York, N. Y.

Second Annual Sales Conference Scores A Hit

Load Building Problems Discussed by Leading Executives

By C. E. Greenwood
Commercial Director, E.E.I.

FOR many years the electric utility companies were challenged by critics for failure to develop greater volume sales in kilowatt-hours through residence consumers. Of executives it was said, "They are not sales-minded." Great engineering and legal minds do not envisage the problems of the market place. They think people just "buy" from us. Why get hot and bothered about selling?

Those who have been closest to the commercial activities of the power company for at least the past decade and more, will admit an element of fairness in this criticism, without outstanding exceptions. Just as the reticence of our government in preparation for armed conflict in the early months of the World War caused business confusion when the declaration was pronounced, and abnormal expenditures were inevitable in order to speed up, so the utilities were unprepared for the more recent declaration of national political conflict.

If 10 years ago the commercial forces of the electric utility group had been mobilized in sales action as at present, with "war-time" appropriations for new business, who knows but the political conflict of today might have been averted?

The theory that the electric utility is a monopoly from the marketing angle, we hope, is crushed. Commercial managers are fighting competition on all fronts. It is a great game, and our industry takes its place with other great industries having organized selling forces for permanent and constructive building such as the automobile, cement, paint, and similar groups.

Like the sales leaders of other industries, our utility men meet together at least once a year in the big tent, check up on how the campaign proceeds, what divisions are making greatest progress, what handicaps may be averted, and how the allied manufacturer and dealer contingents can help us and how we can help them in our forward progress.

And so our annual sales conference. The success of the first one in 1934 was justification for the conclave held in Chicago at the Edgewater Beach Hotel on April 24th and 25th. The registration of slightly over 300 persons who attended is a tribute to the speakers on the program. Major problems confronting the executives of the utility were selected for discussion, and the experience of men of authority was interestingly presented.

H. P. J. STEINMETZ
Chairman, Sales Committee, E.E.I.

The subjects and speakers were as follows:

Opportunities and Responsibilities of Commercial Men—E. W. LLOYD, Vice-President, Commonwealth Edison Co.

Lessons Learned Through Research Among Our Customers — P. H. POWERS, Vice-President, West Penn Power Co.

Financing the Customer—A Major Industry Problem—M. E. SKINNER, Assistant Vice-President, Niagara Hudson Power Corp.

Opportunities for Financing Under Federal Housing Administration—GEORGE G. MEAD, Industries Division, Federal Housing Administration.

Does Dealer Cooperation Work—Does It Profit? — H. M. CRAWFORD, Sales Manager, Pacific Gas & Electric Co.

The Problem of the Unprofitable Customer — GEORGE E. WHITWELL, Vice-President, Philadelphia Electric Co.

Is the Small Appliance Market of Value to the Utility?—C. E. SWARTZBAUGH, Chairman, Manufacturers Committee, Electrical Housewares Program.

Rural Electrification—Its Possibilities and Its Limitation—HUDSON W. REED, United Gas Improvement Co.

Our Approach to the Air Conditioning Market—J. J. DONOVAN, Manager, Air Conditioning Dept., General Electric Co.

Results of the Trial Rental Plan in Hartford — L. H. KNAPP, Hartford Electric Light Co., Hartford, Conn.

A National Advertising Campaign on Electric Cooking—W. H. HODGE, Vice-President, Byllesby Engineering and Management Corp.

Some Results from Application of Objective Rates — F. A. NEWTON, Chairman, Rate Research Committee, E.E.I.

Intensified Merchandising in TVA Territory — E. W. ASHMEAD, Sales Manager, The Tennessee Electric Power Co.

The Market for Electric Kitchen Equipment—R. E. IMHOFF, Westinghouse Electric & Mfg. Co.

The New Light Prescribing Technique—M. J. JULIAN, President, Better Vision Institute.

In this issue of the BULLETIN, only part of the excellent papers appear, some not being submitted in time; others being withheld because information is not for publication now. They will be printed in a later issue or mimeographed for distribution.

Mr. H. P. J. Steinmetz, Chairman of the Sales Committee, presided throughout the Conference. He also held an afternoon meeting of the Sales Committee immediately following, at which the accomplishments of the organizational committees were reported. A reading of the records indicates an active commercial year with marked forward progress. Let's not slacken speed, nor be swerved from our objective of better living through more abundant use of electric service in the home.

Learning from Our Customers

By P. H. Powers
Vice-President, West Penn Power Company

An Address Before the Second Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, April 24, 1935

THE electric utility industry has finally reached the stage when it is no longer necessary to emphasize the need for sales. The most important consideration before us now is how to accelerate these sales. There has already been accomplished a great improvement in our selling technique, despite the fact that most of our selling is still directed by men with a background of engineering training.

Whether we are conscious of it or not, these improvements, these changes in method, have been dictated by our customers. Finding this to be true, my company has set out to seek advice and facts from and about its customers for the purpose of attaining its sales goal more rapidly and reducing the cost of the trial and error method.

It is our experience in the search for information among our customers that I want to report upon today. I will briefly review the steps we have taken, point out at least one method of securing much valuable information at negligible cost and show a few of the benefits to be derived from the possession of this information.

I do not recommend necessarily that other companies do as we have done. Different conditions may call for totally different procedures. I merely mention our experiences as indicative of what can be done in the hope that it will contribute something of usefulness to the industry. In the cause of brevity, I shall limit my discussion to the residential or domestic market, although we have done considerable research work pertaining to the development of the industrial and commercial markets.

Value of Market Knowledge

Suppose you decide to actively push the development of your domestic market. It is one thing to appropriate a large sum of money for the promotion of this business. It is quite another thing to know how to spend this money most effectively. If you are seeking a definite increase in business and by some process have arrived at an estimate of $100,000 as the cost of securing this business, you would then schedule the expenditure of this sum to bring to bear on your market such influences as you believed necessary. Would it not be of tremendous value to you to discover in advance that one particular phase of your program, costing $50,000, would produce 90 per cent of the results you were seeking to obtain? If you made this discovery, you would either save the other $50,000 or you would enlarge your objective and spend a portion of it along the line that seemed to promise the best return. Would it not be of value to you in any sales program to have definite knowledge of your market—such as its potential ability to use more of your product, the strong and weak spots, the groups that represent the best prospects, what the effects of your promotional program have been and wherein you could expect the greatest return for your expenditures?

MR. POWERS

Market surveys are not new. They have come to be recognized as filling a definite need and the technique of making them has been greatly improved. They divide themselves into two classes. One type extracts general information from people regarding their habits, attitudes, beliefs, etc., and the other secures statistical information. Our experience includes both. We made two preliminary and one major survey in 1928. Another of the general information type in 1931 and statistical surveys in 1933 and 1934. For an interesting treatment of the subject of market surveys, I refer you to Professor Philip Cabot's address as reported in the 1933 A. G. A. Proceedings.

Definition of West Penn's Problem

I should like to sketch briefly our territory, so you may be relating it to your own problem, while I am reviewing the steps we have taken to obtain information from our customers through surveys. We have about 150,000 residential customers scattered over an area of more than 8000 square miles. We have no metropolitan centers. Our largest towns are eight or ten in number with populations from 10,000 to 25,000. We serve over 200 communities and small towns large enough to boast of street lighting contracts. Over 50,000 of our customers live outside of incorporated areas although the percentage of farms is relatively small. We have the highest percentage of industrial revenue of any of the larger companies in the country. This means that a great number of our residential customers are industrial workers, many of them living in mining and industrial villages. We are in the center of a low-priced natural gas and bituminous coal territory. We are not a combination gas and electric company. In 1934, we increased our average residential consumption 43 kilowatt-hours per customer to a total of 704. We hope to reach 775 kilowatt-hours per customer by the end of 1935, but we are not satisfied with this rate of progress. Our rates are low, being a three step rate of 6c., 3c. and 1¾c. The 1¾c. step is applicable to all customers and starts at 150 kilowatt-hours. We supply water heating service on an off-peak basis with an on-peak pickup at an average price of about 1c. per kilowatt-hour and a special rider makes the 1¾c. rate available for cooking before the 150 kwhr consumption has been reached.

Prior to 1928, our principal efforts had been directed to the development of

our industrial load. Operation of an aggressive appliance sales department with annual sales of over a million dollars was the principal means of developing domestic load.

Early in 1928, it became evident that we needed a greater backlog of stable income which we felt could only be secured through the more aggressive development of our domestic business, and to a lesser degree through development of the commercial market. Nation-wide figures indicated that the average residential bill was about $28 to $30 per year, regardless of the rates in effect. We wanted to find out if there was a psychological barrier to larger residential bills and, if so, what could be done to get around or over this hurdle. With this background we first got into customer surveys.

Early Surveys

Two preliminary surveys were made to determine the cause for marked differences in residential use in communities of the same size and which, on the surface, seemed to have the same general characteristics. We found certain reasons or at least rationalizations for these differences. But, what was more important, we realized for the first time how little we knew about our customers, their attitudes, and the things which influenced their use of our service. In other words, these surveys served their most useful purpose as eye-openers.

These preliminary skirmishes led us into our first major market study, which was completed at the end of 1928, the study having been undertaken in the belief that the domestic market could be developed more rapidly and that the various influences on this market could be ascertained and measured with the result that money appropriated for load building could be spent more judiciously and with a more reasonable expectation of results. The agency to which this job was assigned interviewed customers, shopped in our stores, visited with our employees and came out with definite and well-reasoned recommendations.

As a result, we made many changes in our selling practices and outlined a long-haul selling and promotional program. It is of interest, at this date, to realize that, in general, we have followed rather closely the course charted as a result of that survey and we have always considered it a very worthwhile investment.

Our next venture in the field of market surveys came in the fall of 1931. Our load-building program, formulated as a result of the previous survey, had been in effect for about two years. Many of the things we were doing represented a definite change in attitude and approach on our part and some of our activities were not only new to us but, as far as we knew, they were new to the industry. We felt, therefore, a need for a checkup on what we were doing. With this in mind, we determined to conduct a "customer-attitude" survey and selected an agency with experience in this field. Again the entire territory was canvassed with a sufficiently large sampling to secure dependable conclusions.

In addition to measuring the effectiveness of our advertising and other sales promotion work, we attempted to measure the customer's attitude toward us as a company, toward the industry generally, and toward our employees. We endeavored to learn what they thought about our method of selling, our stores, service work, rates and other factors. In this survey, we were particularly anxious to learn more about the problems of competing in the natural gas market and to measure the effect of our electric range promotion.

The information resulting from the survey caused us to make many modifications in our promotional plans and gave us a more accurate knowledge of the things which would most likely influence the use of service. The details are interesting chiefly to those who wish to undertake similar research and do not merit further time on this program.

New Statistical Surveys

Having determined and weighed many of the broad market influences, we then realized the need for better statistical information which would enable us to refine our approach to specific portions of the market. This led to a new type of market survey which we embarked upon in May and June, 1933, and repeated in 1934. We had a number of questions which were not answered by previous surveys. We wanted to know the relation between ownership of appliances and use of service or, putting it another way, just what any major appliance or group of appliances would produce in kwhr consumption. We wanted to be able to approach our market in a more selective manner. Specifically, we wanted to sell electric ranges by concentrating our efforts on the best prospects rather than by scattering our shot. We wanted to know what major appliances were being sold in our territory by other outlets and the degree of saturation for the property and of various subdivisions of our territory as a means of measuring the effectiveness of the various sales groups. In the case of ranges and refrigerators, we wanted to find out what percentage was sold by each of the principal manufacturers, partly for the purpose of planning our service work.

This survey was reported in the March, 1934, issue of *Electric Light and Power,* and we will be glad to provide any interested sales manager with additional details.

Method Employed

The method of making the survey was relatively simple and, as you may be interested, I will outline a few of the steps.

It was concluded that the survey could be made by our meter reading force in connection with its regular work. Brief meetings were held with meter readers in each district and definite instructions given to them as to the data desired. This information was noted on the reverse side of the meter sheet, which had been stamped to facilitate recording in a code with but one symbol for each question asked. The men were required to secure information on the ownership of radios, refrigerators (both ice and electric), washers, ironers, ranges (all fuel types and electric) and water heaters. In the case of electric refrigerators and ranges, the make of equipment was indicated for those types in most general use in our territory.

The men were instructed to complete the survey on individual customers as nearly as possible by observation. Where the data could not be obtained in this manner, they were told to make necessary inquiries of the customer.

Clerks in the Billing Department transcribed the factual information from the meter sheets to Hollerith cards, each card having previously been addressographed with the customer's name, account number, address, rate schedule and room rating. The kilowatt-hour use of the previous twelve months was obtained from the meter sheets and for those customers whose record did not extend over a twelve-month period, because of customer change, new connections, etc., a notation was made on the survey card of the number of months the customer had been connected.

Following this procedure, it was possible to secure saturation figures on 127,000 or 94 per cent of our then total domestic customers—a result which we thought very gratifying.

The 1934 survey was conducted in

much the same manner, except that we secured additional data, such as the nationality and occupation of our customers and the number of gas refrigerators in use. Customers were classed as American, foreign and Negro and they were divided into thirteen occupational groups such as, for the industrial workers, coal, steel, glass—and for others, agricultural, utility, unemployed, retired and several professional classifications.

After punching and tabulating the cards, they were cut to a three-by-five size and sent to the field for the use of our merchandising and commercial departments.

Data Secured

The data secured as a result of these tabulations provided a wealth of interesting and useful statistics. Because of limited time, I can give you only a few of the figures we obtained. Some of the most interesting facts are the saturation of major appliances on our property, nationality and occupation of our customers, ownership of appliances by occupation and the annual kilowatt-hour use by occupational groups.

The 1934 survey, having followed closely the data secured in 1933, provided us with some useful comparisons; for example:

Radio saturation was found to be 86.6 per cent, representing an increase in saturation in one year of 5.5 per cent.

Electric refrigeration saturation was 24.1 per cent, an increase of 4.1 per cent. It is interesting to note at this point that, although we gained approximately 15,000 customers, there was a decrease in the number of ice boxes in use of 2500 or 4.0 per cent of our customers formerly using ice for refrigeration.

Washer saturation was 79.8 per cent, representing an increase in one year of only 1.1 per cent and emphasizing that the market is almost wholly one of replacement.

Just the reverse is true in the case of ironers where the saturation has only reached a point of 3.3 per cent for the property. However, this is a class market, as is indicated by a saturation of 12.7 per cent for our customers who are professionally engaged and 14.7 per cent for bankers and brokers.

Ranges.—As I have already indicated, our operations are centered in a low-priced natural gas territory with an abundance of cheap bituminous coal, which tends to limit the sale of electric ranges. The saturation of this appliance has reached 3.3 per cent but, in one of our districts where we are competing with high-priced artificial gas, electric range saturation has now passed the 30 per cent mark, a saturation ten times that in the rest of our territory.

The survey further indicated that, with a gain of 15,000 domestic customers in one year, there was practically no change in gas or coal range saturation, showing that the customers gained numbered many electric range owners.

An interesting observation is that over 50 per cent of our customers who cook on coal ranges are employed in coal mines and, of this group, 85 per cent have no other means of heating water than on their stoves.

In the field of water heating, we have scarcely scratched the surface of the market, as indicated by a saturation of 0.3 per cent; 59 per cent of our customers use gas water heaters; 4 per cent heat their water with coal and over one-third of our customers have no means of heating their water, other than on their cooking stoves.

The figures indicate that 88.5 per cent of our customers are American, 9.3 per cent foreign and 2.2 per cent Negro. In determining nationality, any customer living up to the commonly accepted American standards and speaking English was classified as American. Consequently, these figures do not agree with United States census figures for our territory, which indicate a higher percentage foreign population.

A study of the occupations of West Penn customers indicates 17.1 per cent are employed in coal industry, 11.5 per cent in the steel industry, 3.4 per cent in the glass industry, 3 per cent in agricultural and dairy pursuits, 3.1 per cent in the professional field, 4.1 per cent in the utility business, 7.0 per cent in wholesale and retail trade, 36.7 per cent miscellaneous, 8 per cent unemployed and 6.1 per cent retired.

I have just outlined a few samples of some of the very interesting data which have been made available by this survey. With the aid of tabulating equipment, it is possible to secure many other combinations, such as the ownership of appliances by occupation, the annual kilowatt-hour use by occupation, the kilowatt-hour use of various groups of appliances and the ownership of various combinations of appliances.

Success of this type of survey depends upon the willingness to upset a few routines and the access to tabulating equipment.

Use of Data

With all of this and other material available, you may wonder just what use we have made of it.

We originally set out to secure certain data and when the final answers were available it was surprising the amount of information we had which was useful and which we originally did not expect to get. The results have been used by the Appliance Sales Department, the Advertising Department, the Rate Research Department, the Sales Promotional Department and our commercial field forces. A few of the uses are as follows:

As a tool for our Appliance Sales Department. The individual cards are made available to our salesmen, providing them with a card record for each customer, indicating major appliances which that customer owns and amount of energy which he uses annually. We have found these cards very useful in canvassing and preparing lists of preferred prospects for various appliances. Tabulated statistics on saturation provide a means of measuring the effectiveness of the merchandising job performed in each district and serve as a guide to measure the relative job of our own organization and of the dealers. Let your own imagination tell you what you could do with exact customer knowledge.

The use of the tabulating cards provides a very flexible system for the preparation of direct mail advertising. For example, the cards for the agricultural customers can be sorted out and from these cards mailing lists prepared for direct mail on pumps or other farm equipment machinery.

Aside from the direct use by the Appliance Sales Department, the cards provide a very valuable customer record and are useful in handling high bill complaints.

The Rate Research Department uses the information obtained from the survey in determining the average yearly consumption of customers having lighting only—lighting and small appliances—lighting, small appliances and various combinations of major appliances.

The Sales Promotion Department has used this information as a means of measuring the effectiveness of merchandising by dealer organizations, as a guide to where and on what items to place emphasis and in furnishing actual information to the distributor and dealer organizations.

Cost of Survey

You will want to know something about the cost of the annual statistical surveys. The field data, secured by our meter readers, represented hardly any

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The Problem of the Unprofitable Customer

As discussed by George E. Whitwell
Vice-President, Philadelphia Electric Company

Editor's Note: At the Sales Conference in Chicago, Mr. George E. Whitwell, vice-president, Philadelphia Electric Company, spoke from a series of charts which showed tabulated data obtained by a comprehensive survey of thousands of domestic customers of Philadelphia Electric Company. Some of the information is not for publication until final completion. A brief résumé of Mr. Whitwell's constructive presentation follows.

MR. WHITWELL discussed at some length the problem of what he describes as the unprofitable customer and defines as a domestic customer, in the city of Philadelphia, one who uses less than 400 kilowatt-hours per year. His interest in this customer arises by reason of the fact that if it were possible for this customer's consumption to be increased to the point where he uses more than 400 kilowatt-hours per year, there would be removed one of the barriers which now exist in connection with residential rate reductions.

Mr. Whitwell's company, the Philadelphia Electric, has been studying these unprofitable customers. It has been conducting a survey with about 20 men who have learned certain very interesting things. Up to the present time these men have called on 111,858 of these unprofitable customers, who total about 275,000, or 53 per cent of the domestic customers of the Philadelphia Electric Company. Actual interviews have been held with 87,171 unprofitable customers—a ratio of interviews to calls of 77.9 per cent.

Among the interesting things found out in this survey is the saturation of the various appliances.

In Table I these saturations have been compared with certain other surveys that have been made. In the second column the figures apply to what can be considered the average residential customer of the Philadelphia Electric Company; the third column applies to customers somewhat above average; while the fourth column gives figures taken from *McCall's Magazine* for rather high-type customers.

An attempt has also been made to determine among unprofitable customers what they will buy next. Table II has been combined with figures taken from the *McCall's Magazine* survey.

Not a part, particularly, of the unprofitable customer survey are some figures presented by Mr. Whitwell on the subject of the extent to which appliances are kept in repair. The first column in Table III has to do with a group of better than average domestic customers

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TABLE I—WHAT THE CUSTOMERS USE

A Comparison of Saturation Surveys

	Unprofitable Customer Survey %	Home Callers Survey %	Appliance Repair Survey %	*McCall's* Survey in New Jersey %	Electrical Merchandising (National) %
Iron	93.2	93.0	96.0	96.5	98.1
Radio	86.3	88.3	90.0	95.6	...
Cleaner	40.0	74.6	90.0	76.0	48.1
Toaster	24.4	45.0	79.0	73.0	46.8
Washer	17.3	34.3	65.0	41.0	46.0
Clock	10.9	25.7	36.0	53.5	41.8
Refrigerator	3.8	31.0	33.0	44.2	29.3
Waffle Iron	4.7	15.2	14.0	51.0	18.4
Percolator	4.1	11.6	31.0	51.0	31.6
No. of Customers	87,171	7,667	1,066	1,017	20,520,870

TABLE II—WHAT WILL SHE BUY NEXT?

Unprofitable Customer Survey Number of Customers: 49,868			McCall's Magazine *Survey* Number of Customers: 847		
	No.	%		No.	%
1. Refrigerator	18,064	36.2	1. Refrigerator	231	27.3
2. Washer	14,853	29.8	2. Food Mixer	160	18.9
3. Radio	6,596	13.2	3. Washer	136	16.0
4. Cleaner	4,856	11.7	4. Sewing Machine	59	6.9
5. Iron	2,078	4.2	5. Ironer	56	6.6
6. Portable Lamp	692	1.4	6. Cleaner	34	4.0
7. Range	568	1.1	7. Range	31	3.7
8. Toaster	470	0.9	8. Dishwasher	20	2.4
9. Waffle Iron	151	0.3	9. Waffle Iron	19	2.2
10. Ironer	149	0.3	10. Clock	12	1.4
11. Clock	144	0.3			

TABLE III—APPLIANCES ARE KEPT IN REPAIR

Philadelphia		McCall's Magazine—*New Jersey*	
Homes Canvassed	1,904	Customers Surveyed	1,017
Interviews Obtained	1,066	Appliances	8,882
Appliances	5,888	Out of Service	222
Needing Repairs	40	Needing Repairs	63
Per Cent of Total	0.68	Per Cent of Total	0.7

Average Consumption per Customer—764 kwhr per Year.
Average Revenue per Customer—$40.44 per Year.

Financing the Customer—A Major Industry Problem

By Merrill E. Skinner

Assistant Vice-President, Niagara Hudson Power Corporation

An address before the Second Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, April 24, 1935

FINANCING the consumer is not only a major industry problem for us, but also for every other industry attempting to sell goods to the American public. Failure to give sufficient consideration to this problem is one of the underlying causes for the business depression. Economists point out that the depression was brought about by the failure of our consuming capacity to keep pace with our producing capacity. The word "consumer" in this sense indicates any purchaser and not necessarily one who uses up a consumable product such as food, clothing, etc. From the point of view of the manufacturer and retailer of electrical refrigerators, a purchaser is a consumer of his products just as much as a patron of a grocery store is a consumer.

A very brief analysis indicates clearly the great disparity in financing facilities for purchasers as contrasted with consumers. If a manufacturer desires to increase the capacity of his plant or expand his operations, he prepares an estimate of the cost of his expansion and the expected results and talks to his banker. In most cases the money is promptly forthcoming and on relatively favorable terms. And so, we go on progressively increasing the capacity of the manufacturing plants and commercial establishments to produce and distribute goods without paying corresponding attention to the problem that confronts the consumer in purchasing the goods.

The automobile industry was one of the first to recognize this problem of financing the consumer, and long before installment selling had become recognized in other lines of business it was well established in the automobile business. Several of the large financing institutions doing business on a national basis today have been built up on automobile paper.

Installment selling has not always been the accepted business practice that it is today. I can still recall debates which went on only a few years ago

MR. SKINNER

which challenged installment selling to justify itself and in some cases even impugned the business ethics of selling goods on installment. Today, however, there are few who will argue the negative side of this question. I think the depression has thoroughly demonstrated the soundness of this type of business and instead of the dire predictions actually coming true which were made as to what would happen to it during a major depression, the reverse has happened and we find that installments have been paid regularly and, in some cases, more willingly than other types of obligations.

In recent months we have heard a great deal about inflation. Currency inflation; credit inflation and so many other forms of inflation that most of us are in a haze as to what is meant by the term and what the probable consequence will be. The amount of inflation which can be brought about through a devaluation of currency is admittedly much less than that which can be brought about through expansion of credit. If we believe that uncontrolled credit inflation is dangerous, we must remember that selling merchandise on installments is a means of expanding credit and is, therefore, an operation requiring careful supervision. It is a means, however, whereby the purchaser can anticipate the benefits of his purchase just as the manufacturer by borrowing money from his bank may construct the facilities with which to build and expand his business. As long as the paper represents honest intention to pay, it is a form of inflation which seems highly desirable under present conditions.

Regardless of the details of the methods employed, any installment operation involves elements of cost which must be clearly recognized. Someone has to pay these costs, either the purchaser or the seller. It might be well, therefore, at the outset of this discussion to get clearly in our minds the things which have to be done in order to finance time payment paper. I have divided them into three subdivisions:

I. *Preparation Expenses.* These include the following:

1. Organization
2. Legal
3. Preparation of Forms and Routine
4. Selling plan to Manufacturers and Retailers
5. Establishing field offices
6. Rent, Light, Heat, Telephone and Supplies
7. Personnel
8. Securing Funds

All the foregoing expenses must be undertaken before initiating the business. The extent of the expense, of course, will depend somewhat upon the area to be served, the different kinds of paper to be purchased and the amount of business to be handled.

II. *Operating Expenses.* After the preparation, the next groups of expenses I have classified as operating expenses, including:

1. Instruction of retailers and their salesmen
2. Credit investigation and supervision
3. Verification to prevent fraud

4. Bookkeeping
5. Making remittances to dealers
6. Billing installments
7. Collecting
8. Delinquent notices
9. Adjustments and delinquent collections
10. The last resort in effecting collection—repossession of the merchandise itself

Not all of these operations are involved in every transaction, but a business cannot proceed very far without having to provide for each of these expenses in connection with one or another of these accounts.

Chart I—The Finance Dollar

III. *Resultant Expenses.* Then as a result of the business there are expenses which must be provided for:

1. Reserves either for the benefit of the retailer or manufacturer
2. Taxes
3. Surplus for profit or loss as the case may be

The foregoing are the operations which must be anticipated. The amount of the expenditure will, of course, vary widely with the scope of the operation which is undertaken. Nevertheless, these elements of cost are present and they must be provided for when merchandise is sold on time whether the paper is discounted to a commercial financing institution or whether it is held and carried on the working capital of the retailing organization. In Chart No. 1 I have attempted to break down the finance dollar to indicate the approximate division of income to the various items of expense. This break-down contemplates a complete financing service being operated on a national basis over wide areas. It would be possible by curtailing the scope of the operation to reduce or eliminate some of the items of expense, but for a concern doing business nationally and rendering a broad service such as is required by retailers, this chart is approximately correct. It is interesting to note that the cost of money represents only about one-third of the total finance dollar. This illustrates the fallacy in comparing the amount of the finance charge with bank interest. How many times we have to meet the argument on the part of the customer who, protesting against so-called carrying charges, calls them outrageous and compares them with the charge made for borrowing money at a bank. Of course, the customer forgets the differences which are inherent to the two operations. If he would borrow money from a bank, he goes down to the bank, he assures the banker as to the appropriateness of the loan and his ability to repay. But to make certain that the bank cannot lose, he deposits collateral and signs a power of attorney which puts the bank in a position to instantly recover the amount of its loan wholly at the expense of the borrower in the case of a default. Then when interest or principal is due, there is no lost motion whatever, you go to the bank and pay your obligation—or else. Just a moment's consideration will serve to make clear how different the operation of borrowing money at a bank is from that of obtaining installment payment privileges on the purchase of a piece of merchandise.

Some of the expenses incident to the financing operation are more or less independent of the amount of the individual transaction to be financed or the number of months before the obligation matures. These we might refer to as fixed expenses as contrasted with the variable expenses which are proportional to the amount of money involved or the duration of the obligation. It seems perfectly clear that there will be some figure which represents the irreducible minimum of fixed expenses which will be incurred the minute any piece of paper is discounted with a financing organization. Likewise, there is a minimum individual installment below which it is not economical to go. Just what these figures are is pretty difficult to say, but it is probable that the minimum fixed expense is somewhere between $3 and $4, and $3.50 might be a good average estimate. Likewise $2 might be a pretty fair estimate of the minimum installment which can be handled with economy.

Let's see what happens when we attempt to discount paper covering small appliances. Chart No. 2 shows the minimum finance charge expressed in percentage of the amount of the unpaid balance to be financed. In this case we have assumed the minimum finance charge to be $3.50. If the unpaid balance is $30, this represents 11.6 per cent. . On the other hand, if the balance is only $20, the charge becomes 17.5 per cent, and, of course, if the transaction were for only $3.50, the finance charge would be 100 per cent of the amount financed. Obviously, there is some point along this curve where the resistance of the purchaser will rise so high as to make it impossible to sell such terms. What, then, is the answer to the credit jeweler doing business on a basis of 25c. down and 25c. a week? If you will examine such operations, you will find the answer is in one or several of the following possibilities:

1. Incomplete service
2. Cost concealed by the markup
3. Punch card accounting
4. Cost absorbed as a justifiable expense in securing added business

Can a utility engage in such a time payment selling operation? The answer is "Yes."

Should a utility engage in such an operation? The answer is "I don't know." Such questions can only be answered by the local management. It might be well to remember, however, that in general the retail trade in a community is not particularly friendly to those merchants who engage in the 25c. down and 25c. a week business. It is only natural to assume that if they re-

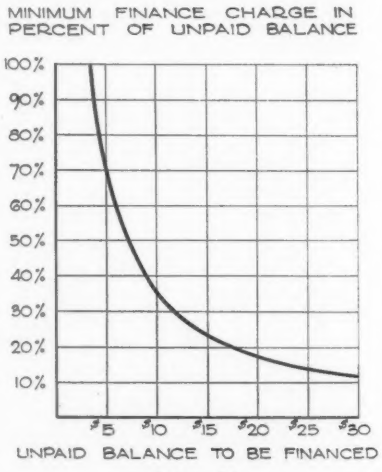


Chart II

sent this on the part of an independent merchant, their resentment will be increased manyfold if a utility undertakes such an operation. Many utilities have been importuned to take over such small appliance paper from dealers and thereby put them in a position of competing with terms offered by credit jewelers and other such retail establishments. It should be fairly evident from the fore-

going analysis that if this is done on any basis that will result in a large volume of business, it practically amounts to a charitable undertaking as far as the utility is concerned.

Utilities in the main have had no particular difficulty in financing the sales which they originate although in recent years, with the impressive burden of taxes and the difficulties of financing additions and extensions, many companies have pondered the question. The problem is to secure adequate financing service for the independent dealers in order that their sales volume may swell and bring about the load increases which are so badly needed under present-day conditions. I am concerning myself in this discussion largely with this problem of financing dealer paper. There are a large number of financial institutions which are engaged regularly in the business of buying paper which represents a time payment contract between a retailer and a purchaser. Most of these companies have been interested primarily in automobile paper or in some other similar financing service involving large units of business, and it is only recently that they have become interested in the electric appliance business. The plans which they have made available in the past have fallen short of the requirements which we, as utility operators, have felt were necessary, and we might review very briefly the salient features of their past plans.

In the first place, their plans have been based upon a contract with some national manufacturer under which, with or without a reserve to protect him, the manufacturer agreed to back the paper originated by his dealers which the finance company couldn't collect. The plan, therefore, became limited to the products of that one manufacturer. In the second place most of these plans have been based upon dealer credit rather than consumer credit. This was a matter of expediency due to the expense which was involved if a financing company were to secure adequate data and information in regard to consumers' credit, whereas it was a comparatively simple task to secure a balance sheet from the dealer and make an estimate of his credit standing. Under such an arrangement, even if mistakes were made in the consumer credit appraisal, as long as the dealer's liability was within the limit established for his credit, the finance company had nothing to fear. The inevitable result of such a method of operation would be poor collection experience which, in turn, was reflected by high rates. As a matter of practical operation, most of these plans were of little value in the field.

Most of the national manufacturers established plans with one or the other of the nationally known finance companies and ballyhooed them to their dealers, but if the dealer was strong enough financially to qualify for the plan, he probably had idle money available to carry his own paper. The dealer who really needed the service could not hope to qualify. This situation has been recognized for a long time both by the manufacturers and the utility companies, and efforts have been made over a long period of years to convince the national finance companies that more appropriate methods applicable to electrical appliances would justify a more liberal and practical plan. I recall that a special subcommittee of the Sales Committee of the old N.E.L.A. was appointed to confer with the national association of finance companies, but that was in 1928 or 1929, and the finance companies were very little interested in the appliance business. Why bother with a lot of small appliances when they could employ almost all the funds they could get their hands on in financing automobiles or other items involving substantially larger unpaid balances?

All this leads to the question why should not the utility handle dealer paper? Well, many companies have. Some with considerable success, but others with indifferent success or failure. Many times the utility company ran into exactly the same kind of problems which I have outlined and have ended up with a plan which looked fine on paper, but which was of very little real value to the dealer. There are any number of important problems which should be given consideration before a decision is reached on the part of a utility to go into the business of financing dealer paper. These questions vary somewhat with the state in which the utility does business and with the character of the charter under which it operates, but at least they should be looked into carefully.

In the first place, does the company's charter permit it to engage in such a business? Would engaging in such a business bring it under the supervision of the banking authorities? Most of us feel that we are already under enough supervision without adding any further responsibilities in this direction.

Second, is the operation to be carried on by the utility company itself or will a separate corporation be organized? Can such a company be a stock company or must it be incorporated under the banking laws?

Third, is there an ample supply of funds available? If that is true under present conditions, will it continue? For the maturities of paper today have been extended to the point where funds should be available over substantial periods of time.

Fourth, how will such installments be billed? Some states will not permit such installments to appear on the electric bill. Some companies deliver their bills, and postal regulations have something to say to that question.

Finally, there are a whole series of public relations questions involved which, under conditions as they exist today, may be very important factors in such a decision.

I simply suggest these points as matters which should have the most careful review before an operating company undertakes to finance dealer paper.

Recently the attitude of the principal financial institutions engaging in this business has changed materially, and I believe that more progress has been made within the past year in the development of dealer finance plans than for many years previous. In the first place, as time has gone on, these companies have become increasingly familiar with the appliance business. They no longer fear it because individual experience has exploded some of the dire misgivings they had in regard to the problems of handling electric appliances. I think their experience on refrigerator paper has probably contributed more than anything else to this feeling, for they have handled many million dollars' worth of refrigerator paper with infinitesimal loss and with a better collection of experience than has been true of some of their other lines.

I suspect that government activities have had something to do in stirring up the finance companies to get into the electric appliance business. Through the means of the Electric Home and Farm Authority, the government has entered the field as a direct competitor to their activities with rate charts which, when they were announced, were so far below the charts of the commercial companies as to produce almost shocking comparisons. Another government activity which has probably contributed something to the present enthusiasm for appliance business is the Federal Hous-

ing Authority with its guarantee provisions for housing loans. The promotional drive back of this activity has forced many banks into the small loan business, and they are finding it a very profitable way of employing their surplus funds. In those words "surplus funds" probably lies the principal reason for the present interest of finance companies in the appliance business. As the depression set in, the volume of new paper being purchased gradually diminished and, as the previously purchased paper paid out, all of these companies found themselves with huge sums of money available for investment.

Inevitably, with the experience they already had with refrigerators an expansion of the field to include other lines of electrical appliances was a very logical one. This new attitude of the finance companies toward electrical appliances has brought about during the past year or so a number of new plans for handling dealer paper, many of which offer a fairly complete solution for the dealer's problem. The new plans have substantially lower rates than formerly; they permit much more liberal terms as far as down payments and maturities are concerned; they are based upon consumer credit, and, while the retailer must still take his responsibility for repurchase of his paper in default, his financial position is not nearly so important as it was under previous plans; and, finally, some of these plans have been extended to cover a wide variety of appliances manufactured by representative manufacturers.

As in every other activity, intelligent cooperation among those interested in financing appliances can and will result in substantial economies. The maximum economy should result when each party at interest performs the particular functions for which he is characteristically best set up to handle. It was this concept which resulted in the development of the Economy Purchase Plan which was instituted by the Buffalo General Electric Company in cooperation with Commercial Credit Corporation in October, 1933. After a year's trial, the plan has worked out so successfully that it has been extended to all of the remaining territory served by the Niagara Hudson System Companies. This plan has been thoroughly described in articles which have appeared recently in the trade press to which those who are interested are referred.

I think it is important to emphasize, however, the ways in which the interested parties to the financing operation cooperated to bring about the favorable characteristics of the Economy Purchase Plan. The five interested parties cooperate under the Economy Purchase Plan as follows:

I. The purchaser accepts responsibility to pay his obligation promptly. The inherent sales resistance involved in getting the customer to accept this responsibility at the time of signing the contract is overcome by holding out rewards to the prompt payers as contrasted with the treatment accorded delinquents. A charge of 25c. is added to each installment if not paid within 10 days of its due date.

II. The retailer furnishes purchaser credit data; assistance in delinquent collections; and performs the physical work involved in handling repossessions. Note that these functions are all field operations which the retailer is in an excellent position to handle due to his close relationship with the people of the community he serves.

III. The utility, through its sales promotion organization, provides the field contact with dealers and their salesmen to call to their attention the merits of the plan and the detailed manner of handling its features. They provide such local office facilities as may be required and make available the most accurate and conveniently accessible means of checking the accuracy of the credit information submitted by the dealer. They also make out the bills and handle remittances. In this field they enjoy particular skill due to the fact that they are one of the few concerns in each community who must bill every householder in the community monthly and handle a corresponding remittance. The machine accounting facilities of the public utility companies are the highest examples of perfection and economy in preparing and handling large numbers of small bills and, of necessity, they have to have conveniently located facilities for accepting remittances from their customers in every corner of the community.

IV. The manufacturer protects the finance company against unscrupulous or bankrupt dealers. These dealers are the local representatives of the respective manufacturers and it is most logical that the manufacturer who is dependent upon this local dealer for his reputation in the community should take full responsibility for him being honest and upright and for his continuing in business.

V. The finance company handles all other phases of the operation including the furnishing of all forms and of competent personnel to administer the plan; taking full responsibility for credit determination; furnishing of funds necessary for the operation of the plan; and handling all delinquent collections. The finance company thus can specialize and become more expert in handling the reduced scope of activity assigned to it under this plan.

We feel from our experience that the fundamental principle underlying the Economy Purchase Plan is sound, and it seems to have met more fully than any other plan which has come to my attention what one might describe as the requirements of an ideal dealer finance plan.

Mention should be made of several other plans which have been inaugurated recently and which have made substantial contributions toward a solution of the problem of financing the consumer.

The Union Electric Light and Power Company of St. Louis some time ago instituted a collection service for dealers on small appliance contracts. The Commonwealth Edison Company of Chicago offered dealers a plan to assist them in financing appliance sales particularly designed to fill the gaps in the plans of the national finance companies. The Southern California Edison Company, in cooperation with the Commercial Investment Trust Company, has made available a plan for financing ranges, water heaters and refrigerators with low rates and liberal terms made possible by the backing of the Edison Company. The most recent plan to come to my attention is one worked out by the Rochester Gas and Electric Company in cooperation with the Lincoln Alliance Bank of Rochester. This plan incorporates a number of the features of the Economy Purchase Plan and offers still lower rates because of the endorsement of the Rochester Gas and Electric Company on the dealer paper. Of course, this materially increases the burden on the utility company, but it practically guarantees payment to the bank and makes it possible for them to consider a much lower rate than would otherwise be necessary.

What are the requirements of an ideal plan? In my opinion, they might be stated as follows:

1. The plan must be compensatory—that is to say, all parties who participate in it should be adequately compensated for such participation. This is necessary to insure that the plan be a stable one, for if it fails to meet this requirement it will fail sooner or later because no one will continue indefinitely a plan that fails to compensate them for their effort.

2. The plan must have wide availability. The small dealer needs a finance plan worse than the big dealer does, and so if it is to make any contribution to the appliance business in a community the plan must be available to all dealer classifications. This is possible the minute the plan rests upon purchaser credit and, in this manner, becomes independent to a large extent of dealer credit.

3. The plan must be comprehensive in its scope. A plan which is limited to refrigerators, ranges and water heaters is not a complete solution to the dealer's problem, and, in my opinion, the ideal plan should provide facilities for handling time payment paper on all classifications of electrical appliances.

(Continued on page 166)

Opportunities for Financing Under the National Housing Act

By George G. Mead

Industries Division, Federal Housing Administration, Washington, D. C.

An Address Before the Second Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, April 24, 1935

BEFORE entering upon the subject which has been assigned to me, I would like to explain that the policy of the Federal Housing Administration in regard to various financial institutions is absolutely neutral. In other words, we do not, under any circumstances favor one financial institution as against another. Should I anywhere in my remarks make any statement which under any interpretation might be construed as being partial toward one financial institution or otherwise toward some other financial institution, I would like to make it clear that there is no intention whatever to create such an impression, and I will be pleased to correct myself if anything I say may be misconstrued.

I know that most of you gentlemen have a clear idea of the operation of the National Housing Act as administered by the Federal Housing Administration. It has been my experience in talking with groups and individuals in various sections of the country that a very large number of people do not have a clear understanding of the Federal Housing Administration program.

A great many people get the Federal Housing Administration confused with other governmental agencies having to do with housing, mortgages or other loans. It is unnecessary for me to go into detail here of the difference in operation of such other agencies and those of the Federal Housing Administration.

However, I would like to emphasize one point. In most Federal agencies having to do with housing or other building, public funds are being used to take over mortgages, build homes, or lend money. In the case of the Federal Housing Administration no public funds are being used except in the operation of the administration itself and the insurance on modernization credits, which I will later cover. The funds are all coming from private sources or rather privately owned financial institutions, such as banks, building and loan associations, insurance companies and finance companies.

MR. MEAD

The purposes of the National Housing Act are threefold: First, to create additional employment; second, to stabilize real estate values, and third, to release some of the funds which at the present time are frozen in financial institutions throughout the country in excessive liquidity, just as solidly as they were frozen at the beginning of the depression by slow, or worse, credits.

The National Housing Act, which was approved June 27, 1934, contains several sections on different subjects. All, however, pertaining to real estate financing. These sections are referred to in the Act as titles and numbered. We are only interested in Title I and II and III, as those are the sections which are administered by the Federal Housing Administration. Title I is that portion of the Act in which you gentlemen are primarily interested, and I will come back to that in a moment. However, I would like to touch briefly on the other phases of the Act.

Title II provides for mutual mortgage insurance on mortgages on homes. You are interested in this section to the extent that, among other things, it provides for new construction of dwellings which, of course, means the sale of additional equipment and power.

Title III of the Act provides for the organization by private capital of National Mortgage Associations, which are intended as resale outlets for banks and other financial institutions to assure their liquidity in case they should ever need the money tied up in these insured mortgages.

Reverting now to Title I of the Act, that section which provides for insurance of modernization credits. It is unnecessary for me to go into detail, as you gentlemen are familiar with its operation.

There is, however, one point on Title I which I would like to bring out. At the present time, the maximum amount of loan on any single piece of property is $2,000. Ordinarily, I believe that would be sufficient to take care of the usual electric appliances with possible exception of certain equipment for apartment houses. However, there is an Act before Congress at the present time which has passed the House and is at present before the Senate. While no one can say definitely, it is expected to pass the Senate shortly and be approved by the President, increasing this limit to $50,000.

As I understand it, you gentlemen are interested in the sale of electrical appliances and equipment because such sales will increase the consumption of power. If and when this Act is put into effect, it will permit the financing of heavy-duty units such as the sale of elevators, electrification of factories, etc.

Under the present Act the time limitation for insuring loans under Title I is January 31 of this year, but if the Act I just referred to is put into effect, the time for insuring loans will be extended until April 1, next year. While

no one is competent to say whether or not this Act will be again extended, should there be a special session of Congress next year there is some talk in Washington that there is that possibility.

I will not go into detail as to all items which have been ruled as eligible or ineligible for insured loans, but the guiding factors for the regulations on eligibility to date have been that such fixtures or appliances must be permanently attached to the real estate and be necessary to the full enjoyment or use of such real estate. "Permanently attached" does not mean that such chattels or appliances must be so attached as to become legally fixtures and therefore a part of the real estate. Some of these regulations may seem a bit arbitrary or contradictory, but the Act itself limits loans "for the purpose of financing alterations, repairs and improvements upon real property." Those officials of the Federal Housing Administration charged with interpreting that section of the Act have taken a very broad attitude. An electric range, for instance, attached by the heavy cable is eligible. A refrigerator merely plugged into the socket is ineligible. However, if the socket is removed and the wires soldered to the wiring system it is eligible. That is not necessary, however, as many devices for permanent attachment have been approved. Just before I left Washington, I saw a little device in the nature of a bracket which fitted over the plug and was attached to the wall by two screws. This particular device can probably be manufactured for less than five cents.

As to the eligibility of the equipment itself if properly attached, refrigerators, ranges, electric washing and ironing machines, etc., have been ruled eligible; garage equipment also was recently ruled eligible. On the other hand, radios and similar items, even though permanently attached, have been ruled ineligible.

As I stated before, only financial institutions are eligible for this insurance under Title I. The insurance costs the financial institution nothing and covers it against loss up to 20 per cent of the total amount of the loans made or financing done. This does not mean 20 per cent of each loan, but 20 per cent of the total loans made. Experience in installment financing has shown that this 20 per cent is far in excess of what possibly could be required in event a financial institution has any volume whatever. The experience along these lines of financing has varied from less than ¼ of 1 per cent to around 3 per cent in very unusual cases, and this experience includes financing done prior to and during the depression. I have been closely associated with installment financing most of the time during the past 17 or 18 years and I know from actual experience that never in the history of installment financing have financial institutions had such a good record on defaults and projected losses (which, of course, are insured) as they have had to date on modernization credits.

The charge of financing under the Federal Housing Administration regulations is $5 discount per hundred dollars face amount of the note for each year the loan is outstanding. The charge is explained in detail in the booklet, "Modernization Credit Plan" Bulletin No. 1. This rate is lower than has ever been offered the public before on this type of financing.

The principal advantages of financing under Federal Housing Administration regulations are as follows:

First: The credit insurance with practically no possibility of loss if you have any spread at all.

Second: The low cost. You men, as salesmen, know the advantage of price in competition.

Third: No down payment.

Fourth: Long terms—which are made safe by the credit insurance, with resultant lower monthly payments.

All of which greatly broadens the market and makes sales easier.

The policy of the Federal Housing Administration has been to encourage banks to make modernization loans. However, there are still a few localities in the country where either there are no banks or the banks are not yet making modernization loans. There are also certain types of industries to which the standardized plans of finance companies are more adaptable than using the banks. As a rule, banks must consider each individual loan as a separate and distinct transaction. That works out very well for local contractors, lumber yards, plumbers, etc. But when it comes to items such as you gentlemen are interested in the unit is usually too small for a bank to consider under its usual routine. Likewise, the products in which you are interested are usually sold under scientific sales methods and the salesman must be in position to close all details of the sale including financing on the spot. In other words, he must be in a position to get the prospect to sign on the dotted line. Therefore, I believe you will agree with me that standard plans of finance companies are more adaptable to this line of business.

There are three methods in which this financing can be done under the National Housing Act.

If it is practical we would like to have the banks do the financing. This will unquestionably be practical in a great many instances when larger installations are financed if the Act increasing the limit to $50,000, to which I just referred, becomes effective.

Another method is to finance through independently operated finance companies. Most of the larger finance companies have not seen fit to apply for contracts of insurance for reasons which can be explained but which I do not feel the subject for open discussion here. At the present time there are between 20 and 25 independently operated finance companies which have been issued insurance contracts. Most of these operate more or less locally although several operate in more than one state and two operate on a national basis. One operates in all of the West Coast states and a few states east of those. These companies are able to operate successfully on Federal Housing Administration rates due to circumstances usually peculiar to the particular company, such as very low overhead, unusual availability of money at low rates or not being under necessity of paying large preferred dividends or high common dividends. I, of course, am not in a position to speak for any of these companies but I know that at least some of them would be very glad to work out plans for financing electrical appliances and equipment. I have here a booklet entitled "How and Where Credit is Available Locally Through Finance Companies" which lists these finance companies, giving the territory covered and also general information as to type of paper purchased, etc. A supply of these booklets is also available to you. This booklet not only contains a list of independently operated finance companies but also a list of finance company subsidiaries of parent companies which will finance an entire job if a certain percentage of the product of the parent company is used. It is quite possible that in many instances some electrical contractors and dealers may be able to have some of their jobs financed by these companies in connection with other work.

There is another group of finance companies listed in this pamphlet which are subsidiaries of parent companies, whose operations are restricted to their

own factory branches or dealers or products.

The third method available for financing electrical equipment and appliances is for either a manufacturer, or a group of manufacturers to get together, and organize a finance company for that purpose or for a utility company, or a group of utility companies to get together, and do the same thing. Here, I would like to explain why it is necessary that an industrial concern organize a finance company in order to have its modernization credits insured. Under the National Housing Act a contract of insurance can be issued only to a financial institution and cannot be issued to an industrial or commercial concern. Those industrial concerns which have organized subsidiary finance companies and which are listed in this booklet have found that such an arrangement is very desirable and has very materially increased their business. If any of you have any doubts on that I will be very pleased to give you the names of the industrial companies which have been particularly successful along these lines and you may verify that fact. I will not go into the details of organizing subsidiary finance companies as it is quite fully covered in the folder "Finance Companies under the Modernization Credit Plan" which is also available, but I would like to call your attention to this. A subsidiary finance company may be organized with either a nominal or substantial capital. If it is intended that it should stand on its own feet and operate more or less as an independent finance company it should have a substantial capital. On the other hand, if it is intended that it is to obtain its working funds from its parent company it may be organized with merely a nominal capital. The credit department of the Federal Housing Administration has fixed a minimum of $5,000 for a nominal capital. I might also add that the cost of organizing such a finance company is very low. If any of the representatives of manufacturers or public utilities present would like to discuss either of these three methods in more detail I would be very happy to have you get in touch with me while I am here or you may communicate at any time direct with the Industries Division of the Federal Housing Administration, Washington, D. C.

I haven't the time to quote statistics as to how much certain manufacturers, dealers and contractors have increased their business by taking advantage of the Federal Housing Program but the business developed by those who have really gone out after it has been phenomenal.

I would, however, like to call your attention to two or three examples. The following quotations are from official statements made by the particular individuals:

"FHA LIFTS AMERICAN RADIATOR OUT OF RED," SAYS CHAIRMAN WOOLLEY

"The Better Housing Program is given credit by Charles M. Woolley, Chairman of the Board of American Radiator & Standard Sanitary Corp. in his annual report to the stockholders, for turning a loss of $881,575 in 1933 into a net profit of $1,455,-227 in 1934. Mr. Woolley stated that the increase was largely a result of home modernization and repairs. In speaking of the Housing Act, Mr. Woolley remarked, 'The important thing is not so much the total volume of work it has created, as it is the awakening of national consciousness respecting housing.'"

* * *

HOUSING ACT AIDS PHILIP CAREY COMPANY TO BOOST PROFITS

"Increase in net profits from $50,793, in 1933, to $146,740 in 1934 is credited largely to FHA by George D. Crabbs, President of the Philip Carey Manufacturing Co.

"Modernization of homes throughout the United States during the last half of 1934, due to the National Housing Act, was very beneficial to the company's volume and much greater results are expected to be enjoyed by the company through the National Housing Act on the modernization work and the building of new homes during the year of 1935."

* * *

TIMKEN ATTRIBUTES 50 PER CENT INCREASE IN OIL BURNER SALES TO FHA

"'Our oil burner volume in the fourth quarter of 1934 increased over the fourth quarter of 1933 by 50 per cent,' reports the Timken-Detroit Axle Company.

"'There is no doubt in our minds but that the National Housing Act was largely responsible for this increase in business.'"

* * *

FOX FURNACE REPORTS LARGE SALES INCREASES

"C. A. Olson, president of the Fox Furnace Company, states that 'our sales for the last quarter of 1934 were 32 per cent ahead of sales for the last quarter of 1933. Our sales for the first quarter of 1935 were 28 per cent ahead of sales for the first quarter of 1934.

"'We attribute these increases almost entirely to the Better Housing Program. An analysis shows that practically all of our business is coming from the old house market for remodeling work and in most cases sales were stimulated by the Better Housing Program. We are extremely enthusiastic over the possibilities of the Better Housing Program. It has been more helpful to us than any other activity we know of.'"

* * *

What others have done, you can do. The business is available, the money for financing it is available. All you have to do is get out after it.

Learning from Customers

(Continued from page 135)

out-of-pocket expense, since we had to add the equivalent of only one meter reader during the two-month period of the survey.

The actual amount of work involved after the field data was secured required 4500 clerk-hours and 2500 machine-hours on the Hollerith machines. Use was made of slack time of permanent employees and, in addition, nine temporary clerks and two key-punch operators were hired for a period of one month at a cost of $699. The stationery, consisting of tabulating cards and recap sheets, cost $220, making a total out-of-pocket cost for these surveys of $919. There was no cost in connection with the use of the tabulating machines as statistics were secured during the time when the machines were ordinarily idle. Had it been necessary to have the machine work done by an outside organization, the additional cost would have been approximately $1,500. We estimate the actual total cost in making each of these surveys, including intangibles which cannot be directly evaluated, at $1,200. Filing equipment for the cards, a non-recurring expense, was $368. Our total cost is, therefore, something less than one cent per customer per year.

In charting our future program of domestic load building, we have decided that we will be justified in making annual surveys in much the same manner as we have done in the past two years and will supplement these with qualitative surveys. We feel that the entire cost of the surveys will be alone justified by the use that our salesmen make of the individual customer record cards. Needless to say, the statistical information has proved extremely valuable and, as time passes, the yearly trends of saturation and other statistical data should prove of inestimable value.

We are not satisfied with our present rate of progress in developing the residential market. We feel the need of continuing to seek ways and means of increasing the annual rate of growth. On the other hand, we have some knowledge of our limitations in increasing residential use in sizable percentages without unreasonable cost, and we realize that while, on the one hand, we want large increases—on the other hand, they must be obtained with due consideration for economics. We are not simply building load—we are operating a company which has never yet passed its dividends.

We have concluded that, if we are to obtain maximum development of the residential load, at a reasonable cost, our entire sales program must be based on a very complete knowledge of the market in order that money can be spent most effectively. We are satisfied that our customer surveys will be a definite aid to us in accomplishing this purpose.

Intensive Merchandising in TVA Territory

By E. W. Ashmead

Manager of Sales, The Tennessee Electric Power Company

An address before the Second Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, April 24, 1935

I BELIEVE it would be helpful if I outlined briefly the character of territory in which we operate. The Tennessee Electric Power Company serves approximately 95,000 domestic customers, about half of which are in the cities of Nashville and Chattanooga and the balance are scattered over 30,000 sq. mi. of territory in 400 towns and communities. On a recent trip to visit our forty-six stores in this area, it required one full week's time and 2000 miles of driving and we still missed two or three stores. We do not serve any gas properties, although there is gas competition in over half of our territory. I might add that the average income of the population in our area is reported as one of the three or four lowest of any State in the country.

Believing that the salvation of the electric utility industry rests on its ability to successfully meet the popular demand for lower average electric rates and increased consumption, which now appears to be one of the major objectives of our national administration, a number of the companies in the Commonwealth & Southern Group, some two years ago, laid out their entire program of development toward accomplishing that end. Mr Newton has told you about the "objective" rate plans which have been made effective, and even prior to the rate changes these companies embarked on what they called an "Expanded Sales Program."

I am happy to report to this meeting that after more than a year's trial, the Plan works. Of course, there have been many favorable factors which have helped greatly, but it works and would still work admirably, I believe, even under less favorable circumstances than we have been fortunate enough to have.

While several of our companies have had comparable results, I shall confine my remarks to the figures I am familiar with, those of my own Company, The Tennessee Electric Power Company.

First, let me give you an overall picture of the success of these efforts as measured by the increased use and lowered average rates obtained. For residential

MR. ASHMEAD

service, the average use has increased from 612 kwhr per customer in 1933 to 774 kwhr in 1934, an increase of 162 kwhr in one year's time or 26½ per cent, accompanied by a reduction in average rate paid of 28.4 per cent to a low average price of 4.13c per kwhr for the year. Through March of this year the use has further increased to 822 kwhr and the average rate has declined to 3.93c. Much the same result has been obtained for commercial service which has increased 23.3 per cent in use per customer with a reduction of 17.3 per cent in average rate.

In a compilation appearing in the *Electrical World* for March 2, 1935 (entitled "Appliance Merchandising in 1934") listing the results for seventy-five companies throughout the United States, The Tennessee Electric Power Company ranks first in increased kwhr sold per domestic customer, first in the total number of electric ranges sold by the company and in the number sold per 100 customers, second in the dollar volume of appliance sales per customer, second in the number of refrigerators sold by the company and in the number sold per 100 customers, third in the number of electric water heaters sold by the company, and fourth in the number of water heaters sold per 100 customers.

It will be interesting no doubt to note the present saturation of major appliances in our territory. Between 35 per cent and 40 per cent of our customers have electric refrigerators, about 20 per cent have electric ranges, and 5 per cent are using electric water heaters.

The revenue per domestic customer did, of course, drop with the advent of the new rates and had been dropping quite steadily since 1932, due, in part, to the depression and in part to rate reductions. The very encouraging fact, however, is that after the reduction on Feb. 1, 1934, there was only a slight seasonal drop in the revenue per customer during the spring months and then it began to climb in June above the February figure and has been increasing each month ever since with slight variations. In other words, there was no summer decline in revenue as usually occurs. This is particularly significant when weight is also given to the fact that 7000 small customers have been reconnected to our lines during the past year. By July of 1934, the total monthly domestic revenue was actually above the same month of the previous year; that is, the rate cut was absorbed in five months time. However, on a twelve month ending basis the revenue per customer has declined from $35.16 in January of 1934, before the rate reduction, to $31.78 in 1935 which is the low month. For February and March of this year gains of about 1 per cent per month above the low point occurred in these twelve month figures.

I would like to enumerate the major factors which I believe have contributed toward these results and to say that they could not have been attained without the enthusiastic support of all the executives and department heads of the Company, as well as that of the employees and sales people themselves. The major factors referred to are:

1. A unique plan of successive automatic rate reductions, known as the "Objective Rate Plan."
2. An "Expanded Sales Program" of greatly increased sales activities.

3. Agreements (for financing appliance sales) with the United States Government through its agencies, the TVA and the EHFA.
4. Improved public relations through better service, lower rates, courteous attention and acquainting the public with these facts by advertising, radio and personal contact.
5. Improved employee morale in having such an objective to work for and in benefiting financially from the results of the load building campaign.
6. Personalizing the service the company renders by the use of "Reddy Kilowatt," the electrical servant.

This "Expanded Sales Program" was gradually developed during the period between July 1, 1933, and the early summer of 1934, and involved the following plans or methods for increasing sales:

1. Greatly increased personnel in all phases of sales work.
2. A plan for encouraging direct selling of small appliances by employees and for turning in prospect cards on major appliances by all employees of the company.
3. Providing liberal compensation, bonuses and prizes for salesmen and employees.
4. Furnishing free wiring for electric ranges and water heaters.
5. A dealer cooperation plan.
6. Rentals of electric ranges and electric water heaters.
7. Securing lower priced merchandise.
8. Providing long terms and low carrying charges which are necessary in a territory where the income per capita is among the lowest in the country.
9. Organizing a separate division of the Merchandise Department to handle commercial sales of electric cooking, refrigeration, and air conditioning.
10. An adequate staff of home economists to contact old and new users of major appliances.
11. Organizing a separate division of the Lighting Department to promote home lighting.
12. Increased advertising and promotion through newspapers, direct mail, radio, billboards, street car signs, etc.
13. Complete reorganization of the Appliance Servicing Department to provide adequate and more efficient results.

I will not bore you with statistics on the number of appliances installed, but will merely state that between four and five times as many of each of the major appliances were sold in 1934 as in 1933, and that the dealers, also, greatly increased their sales in all lines; selling twice as many refrigerators, and from eight to ten times as many ranges and water heaters as in the previous year.

One of the main objectives has been to increase the use of the small customer. The home lighting girls have directed their efforts particularly on this group. In several campaigns on small appliances, special commissions have been paid if the appliances went into homes paying electric bills of less than $3.00 per month.

Although national statistics showed an average saturation of about 98 per cent for flat irons, an intensive sale of low priced irons resulted last year in the sale of nearly 19,000 units in Tennessee to about 20 per cent of our customers. A check of over 10,000 of these sales shows that 65 per cent went into homes using less than $3.00 per month of electricity and 50 per cent to homes that had no irons at all at the time they were purchased.

Recently, we have been able to secure a low cost percolator of good quality which over a similar period of time has been even more popular than the electric iron. Four thousand of these have been sold in eight weeks' time.

A check of a large number of TVA model refrigerators, the 4-ft. interim box, indicated that 64 per cent went into homes having incomes of less than $1,500 per year.

Another interesting activity, although not directed particularly at the small customer but which we feel has been especially beneficial to that group, is that we have stressed larger wattage lamps with every purchase of lamps. Sixty-three and six-tenths per cent of all the lamp bulbs sold last year were 60 watts or larger.

When the recent reduction in the price of lamps became effective, we made a check and found that almost 20 per cent of our lamp sales last year were of the 75-watt size, which, as you know, was not reduced in price. We have been disturbed because if our customers who are now using 75-watt lamps in such large quantities were all to drop back to 60 watt, we would stand to lose between $30,000 and $40,000 per year in revenue from these customers whom we have built up to these better lighting standards.

The cumulative effect of these plans directed at the small user is now becoming quite apparent. In April, 1932, there were 17.8 per cent of minimum bill users entitled to 11 kwhr for $1.00; in February, 1934, new rates went into effect entitling the customer to 15 kwhr for $1.00, and for the first month under these new rates there were 19.3 per cent of minimum bills—slightly more than two years previously but getting much more energy for the same $1.00. Records for the intervening months between April, 1932, and February, 1934, are not available. However, since the latter date, there has been a steady decline in minimum bill users except for seasonal increase during the summer months until for January, 1935, there were only 9.6 per cent of $1.00 users as compared with approximately twice as many one year ago.

As further evidence of the shift of customers, there are now 45 per cent of our customers who are earning the low objective rate, exclusive of minimum bill users, as compared to 27 per cent the first month the rate went into effect.

Reference has been made to contracts with the U. S. Government and its agencies. Unquestionably the newspaper publicity, low priced appliances, and long term financing made available through these agreements have greatly helped our program of load building. Sixty-five per cent of the refrigerators sold by the Company, 56 per cent of the ranges, and 60 per cent of the water heaters were TVA models. Other electric dealers in the territory sold TVA models to the extent of about 5 per cent of their refrigerator sales, 10 per cent ranges, and 20 per cent water heaters.

Our plan has been to encourage all employees of the Company to sell small appliances and to turn in prospect cards for ranges, water heaters, and refrigerators which are then worked by the regular salesmen. Prospect cards are good for thirty days and can be renewed for an additional thirty days. If the appliance is sold to the prospect during that period, either by the Company or a dealer, the employee receives a commission, which is not deducted from the salesman's compensation if the sale is made by one of the Company salesmen. This feature makes for cooperation between salesmen and employees.

In general, all of our merchandise campaigns have been conducted somewhat along the following lines:

Sales of all appliances handled by the Company were included rather than have special campaigns on a special item.

Employees were divided into eight major divisions in accordance with our regular operating set-up, two of these being the entire Accounting Department and the Production & Transmission Department.

Quotas were established on a revenue basis rather than on a dollar volume basis. Each appliance sold was estimated to bring in a certain amount of revenue annually. This revenue was credited to an employee and to his division for each appliance sold or on which a prospect had been turned in resulting in a sale. No credit was given for the sale of major appliances replacing a similar electric appliance.

Each division operated under what might be called a local option plan, that is, it

planned its own campaign under certain general rules. Each division was allocated a certain amount of prize money to be used in any manner they might deem best. In addition, there have usually been certain grand prizes for the entire company to the best salesman, leading employees and local managers.

Reverts during each campaign of any appliance sold during that campaign were deducted from the employee's and the division's credit.

Early in 1934, a separate division of the merchandise department was organized to promote the sale of commercial refrigeration equipment, commercial cooking and heating equipment and air conditioning equipment. This Department is headed by a Commercial Merchandise Manager who is assisted by two air conditioning engineers and one commercial cooking specialist in the headquarters office. There is a commercial supervisor in each of the Company's six operating divisions with ten specialty salesmen working under them, principally in our two largest cities, Nashville and Chattanooga. The activities of this division during the past year have resulted in the addition of over 3600 kw of new load through both Company and dealer sales, over 3000 kw of which has been in commercial cooking equipment. This is more commercial cooking load added than shown for any company in the list given by *Electric Light & Power* in its April, 1935, issue.

Considerable progress has been made during the past year in helping dealers promote sales of electrical appliances and in developing closer cooperation and better relations between the Company and Dealers. The Company has made agreements with most dealers handling electrical appliances of recognized standards providing for assistance to the dealer in many ways in the promotion and sale of those appliances. Among the things which the Company is doing for dealers are the following:

1. Furnishing free wiring for domestic electric ranges and electric water heaters and a partial allowance toward the wiring of commercial electric ranges and electric water heaters.
2. Pays bonuses to dealers of $5 for each electric range and $8 for each electric water heater sold by the dealer.
3. Pays any utility employee a bonus for a prospect resulting in a sale by a dealer of an electric refrigerator, range, or water heater.
4. Encourages merchandise managers to assist dealers in their sales promotion efforts, and has recently added several dealer contact men.
5. Offers the free service of its home economists to dealers upon request.
6. Explains the Company's rates and offers sales help and advice at meetings of dealers and dealers' salesmen.
7. Furnishes information on customers' individual bills to assist dealers in closing sales.
8. Carries dealers' names on the Company's own promotional advertising announcing that "the following stores invite you to inspect their new electric ranges, water heaters, or refrigerators."
9. Furnishes servicing help where the dealer is unable to handle it himself.

Since offering this plan to dealers their sales have increased materially and the general relationship between Company and dealers is on much friendlier terms. As evidence of this, I would like to quote from a letter we received a few days ago from a dealer in our territory. This letter is similar to several which we have received:

"We appreciate very much the cooperation we have had from your organization in the past and want to assure you that it is our desire to continue to cooperate with you and do everything that is within our power to put additional load on your line. I just take this means to let you know that we appreciate your cooperation."

Contributing, also, to a very considerable extent in the overall results previously referred to has been the work done by the Lighting Department both by commercial lighting salesmen and home lighting advisers. We now have thirty-two girls engaged in home lighting work, or about one girl to each 3000 customers. Their entire time is devoted to home lighting work although they also uncover and report a considerable number of prospects for electrical appliances which are turned over to the Merchandise Department, and also report complaints and repairs needing attention.

During the year 1934, with an average of fifteen girls engaged during the entire period, over 12,000 first calls were made, reaching about 13 per cent of our domestic customers, and an additional 11,000 customers were contacted through group meetings. Over 50 per cent of the first calls resulted in securing increased wattage which averaged about 250 watts per job closed. A conservative estimate is that $57,000 of added annual revenue was secured at a cost of approximately $21,500 or 38c per dollar added, not counting advertising or overhead expense.

An interesting promotional activity on residential lighting was conducted just before Christmas, known as the "Reddy Kilowatt Christmas Gift Contest." The Contest consisted of a large cross section drawing of the interior of a house completely furnished except for the omission of all lighting fixtures. Underneath the drawing were cut outs of fixtures, all types and sizes. The object was to select suitable fixtures, cut them out, and place them in proper places throughout the house, indicating proper wattage for the fixtures, and to color the complete house and furnishings. Prizes were offered of electrical appliances, each entrant specifying which of a large variety of appliances, in three different prize groups, he would prefer to win. A tabulation of the preferences for major appliances from the 4000 entrants is indicative of their popularity and public acceptance in our territory. The percentages in this group were as follows:

Electric refrigerators	38.1%
Electric ranges	25.1%
Electric cleaners	24.8%
Vacuum cleaners	6.4%
Electric water heaters	5.6%
	100.0%

The Company practically doubled its merchandising advertising during 1934, and the tabulation from *Electrical World*, previously referred to, indicates that we spent more money per customer for advertising than any company in the United States. It is significant, I believe, that paralleling this, our sales record ranked very near the top also.

Coupled with our advertising, we have attempted to personalize our service and to make our customers more appreciative of its value. "Reddy Kilowatt" was introduced to our public about a year ago and since then he has appeared in some form in almost all the Company's newspaper advertising, on the radio, on the electric bills, on the moving picture screen, as a contest promoter, etc., and we feel he has been a great help to us in accomplishing the results sought. I would like to give a couple of examples of the reaction of some of our customers to "Reddy Kilowatt"—one of pathos and one of humor. The following letter was received in a radio contest in which small prizes were offered for the best letters telling how "Reddy Kilowatt" had been of service to our customers. This is the letter which, I am advised, tells of a true incident:

"When my baby was ten months old he had double pneumonia. Physicians were doing everything possible to save his life. On the last day I was told he would reach the crisis at midnight and I must keep the temperature around his little body exactly the same during the night. The doctor suggested I get an electric pad. My husband hurried to the power company and bought one. After greasing baby properly, I

(Continued on page 151)

Is the Small Appliance Market of Value to the Utility?

By C. E. Swartzbaugh

Chairman, Manufacturers' Committee, Electrical Housewares Program

An address before the Second Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, April 24, 1935

HAD either you or I, at the time of the Birth of Christ, started spending money at the rate of $4 per minute—and had we ever since continued spending at that rate—$4 for every elapsed minute since Christ was born, we would at this moment have spent about four million dollars less than the amount of the Relief Bill recently signed by President Roosevelt.

Is 4 billion 880 million a lot of money?

Most everyone seems to think it is. Even some New Dealers, most of whose multiplication tables apparently start at seventeen, agree. It's practically unanimous.

And, can there possibly be any more difference of opinion on the question, "Is the small appliance market of value to the Utility?"

I'm not sure if I'm asking you or you're asking me.

If the latter, in the light of what this country, in the case of Calvin Coolidge, has shown it is willing to do for a man with sense enough to keep his mouth shut, this address, if I may so dignify it, might well consist of the single word "YES."

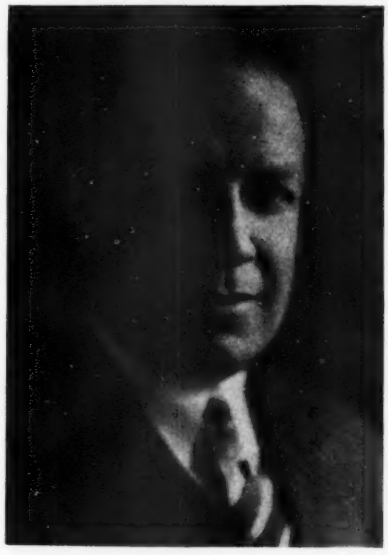
But—the question is provocative of thought—

That both Utilities and Manufacturers are interested in this market is evidenced by the announcement made one year ago at this meeting by the joint E.E.I.-Manufacturers' Committee, of a cooperative industry effort to promote and increase small appliance sales.

The plan was called the "Table Cookery Program."

Perhaps it's surprising there wasn't a small appliance industry program earlier. But, at last we have one—premeditatedly modest in its inception and general plan, and deliberately avoiding any pretense of a cut and dried overall promotional effort. The Committee left to retailers the responsibility of formulating their sales programs to meet individual local conditions.

1934 Appliance Sales materially exceeded those of 1933.



MR. SWARTZBAUGH

How much of this increase may be attributed to improved general conditions—how much to the added interest in promoting small appliance sales, due to the Table Cookery Program, may be a moot question—but that the program was beneficial and helpful is beyond doubt.

The slogan "Electric Table Service Saves" became a by-word—it was the rallying point for the Sales Promotion and Advertising Effort of Manufacturers, Jobbers and Retailers.

Logically, therefore, came the decision of the E.E.I. Sales Committee and a group of Manufacturers to continue the Program this year on a somewhat enlarged scale with some changes and improvements.

The name of the Monthly News Bulletin was changed from *Table Cookery Topics* to the more appropriate *Electrical Housewares*.

The budget was doubled and the program extended to include Irons, Clocks and Small Motor-Driven Appliances.

A series of four prize contests was announced with prizes totaling $2,500.

The appearance and content of the Monthly Bulletin—*Electrical Housewares*—was improved.

* * *

The Manufacturers who are cooperating and matching dollars with you to develop this market are the following:

American Electrical Heater Company
General Electric Company
Hamilton Beach Manufacturing Company
Knapp-Monarch Company
Landers, Frary & Clark
Manning, Bowman & Company
Proctor & Schwartz Electric Company
Robeson-Rochester Corporation
Swartzbaugh Manufacturing Company
The Silex Company
Waters-Genter Company
Westinghouse Electric & Mfg. Company

Perhaps I may be said to be representing this group on your Program today.

If so, I think I am free to admit that their purpose in associating themselves with this Program is not altruistic—but it must be remembered that they benefit from it only in the event that you and all other factors in the industry benefit. And, in the final analysis, the major and continuing beneficiary is the Utility, through the consumers' use of their major product—"Electricity."

Therefore, while benefiting everyone, this program should be, and is, very much yours.

How can you help? Well—order all the copies of *Electrical Housewares* you can possibly use—for your own employees and salespeople—for local dealers cooperating with you. The cost is little enough—the value out of proportion to the cost.

Then—encourage your own people and others to enter the sales contests.

And—send to Edison Electric Institute résumés of your successful sales promotions.

Further—I make no apology for suggesting that price and quality being equal, you are justified in giving the products of these cooperating Manufacturers your preferred consideration.

"Is the small appliance market of value to the Utility?"

Unquestionably—the answer is YES.

But—how valuable is it?

First, it is a great stabilizer—most other utility sales curves have dipped at times, but there has never been a downward trend in the sales curve of juice for Domestic Appliances.

Second—the educational value is unquestioned—Ranges, Refrigerators and Water Heater sales of today were incubated in the lap of yesterday's sales and use of Electrical Housewares. Electrical Housewares have played no little part in selling your service and in building sales volume for the Utilities' major product—Kilowatts.

Why sell Electric Clocks? They use little or no current—but, Gentlemen, they run 24 hours a day. If a woman looks at it ten or twelve times a day, isn't there a subconscious registration on her mind of the value of Electric Service?

And Heating Pads—they're not used often—in fact, everyone hopes they won't have to be used. Yet, when they are needed, they're indispensable. They are a part of your service.

Many range sales today are resulting from your having educated people to the nicety, cleanliness, economy and efficiency of Electric Cookery through the sale of such cooking appliances as Grills, Hot Plates, Cookers and Casseroles.

Third—most Electrical Housewares are used at the right time to produce an attractive "off peak" load.

Yes—the market is of value—of very considerable value.

But, it's not of as much value as it should and could be—and, unfortunately, this is true at a time when it was never of greater importance—at a time when falling sales curves have made the "unprofitable customer" problem acute—at a time when many Utility Sales Executives must of necessity look to the increased use of Electricity IN THE HOME to restore or replace lowered income due to rate reductions.

Lack of consumer acceptance prevents your realizing the full value of this market.

Just why is it that today real consumer acceptance of most Electrical Housewares does not exist—the "iron" is, of course, excepted.

Several reasons immediately occur—

Lack of an industry program.

Spasmodic merchandising operations due to the fact:

That the number of new wired homes each year added a satisfactory increase in Kilowatt sales—without any real effort.

Disorganizing legislation.

Side-tracking of Electrical Housewares for major appliances.

Electrical Housewares are, by and large, still in the promotional stage—available statistics make this fact all too apparent.

In the past, the only ones who could really afford to develop the market were the Utilities. I see nothing to indicate this condition has changed.

May I partially repeat a statement I made to you here a year ago:

Then I said, "It's about time to settle the controversial question of whether Utilities do, or do not, have the right to merchandise.

"Personally, I believe they do—on a fair merchandising basis."

And this year, may I make a prediction (one requiring little daring and no perspicacity)—

The pendulum is ready to swing back (as pendulums usually do) just as far one way as it swung the other—

Many Utilities that are now out of merchandising or have had one foot in and one out of the merchandising trough are, in my humble opinion, going back in *soon*—and those still in it are going to go after business with renewed and inspired aggressiveness.

Possibly there's a silver lining to these rate reductions from the Utility point of view—rate structures have been a rather vulnerable point of attack for self-appointed political Oligarchs, Bureaucrats and selfishly actuated groups, who have capitalized on them.

It will not be so easy to recruit sentiment against Public Utility Merchandising in the future. Lower rates will spike many guns—not that some of our politically self-seeking Representatives in the Professorial Pantitorium for Politicians under the Big Dome in Washington will be silenced—that's too much to hope—but their audience will be much smaller and less interested.

For several years, small appliances have been almost relegated to the background of Utility Merchandising. Ranges, Refrigerators and Water Heaters have been the order of the day.

The value of these major devices to the Utility is unquestioned.

But—"Why eliminate Electrical Housewares or relegate them to the background?" Their value, too, is unquestioned—as a stabilizer, for "Load" and for their educational value.

Other retail outlets don't ignore "Hot Merchandise" because they haven't the time—because their schedule is filled or because the personnel isn't available—*they set up to handle the job.*

Why shouldn't you do likewise?

The Manufacturers of Electrical Housewares respectfully suggest that it would be smart and profitable to include *all* kinds and types of small heating, cooking and motor-driven appliances in your sales picture—not passively, or as a side line—but aggressively and actively—and not at the expense of any other desirable appliance.

After all, your sales organizations can be just as large—just as departmentalized as you wish to make them—they are limited only by your desire and your imagination.

When you return home to your offices, will you give serious thought and consideration to this suggestion (if you aren't already doing so), on the theory that there may be something of benefit and profit in it for you.

I suggest that without in any way interfering with any established policy of your Company as regards the sale of major devices—without curtailing any present or future planned activity on them or in any way endangering your sales or load-building prospects on such devices—*that you seriously consider the advisability and desirability of organizing special departments, expanding sales operations and adding the necessary personnel to concurrently do as effective a job on Electrical Housewares as you are doing on major devices.*

If anything I may have said here spurs your thinking—if you will give this suggestion serious, sober consideration, I would be most happy and would feel amply repaid for having here attempted a difficult task which has been made easier by your patience and courtesy.

The Problem of the Unprofitable Customer

(Continued from page 136)

who were surveyed in Philadelphia last summer. The second column again gives figures taken from *McCall's Magazine.* The extent to which these two surveys check is rather remarkable.

Unfortunately the question of sales of small appliances, and the part they can play in the remedial process of increasing kilowatt-hour consumption among this very low income group, together with a discussion of the problem of marketing the appliances to this class of consumers, must be deferred for presentation in a later issue of the BULLETIN.

Our Entrance Into the Air Conditioning Field

By J. J. Donovan

Manager, Air Conditioning Department, General Electric Company

An address before the Second Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, April 24, 1935

ABOUT four years ago, the great electric power industry, a number of manufacturers, and a part of the public really began to recognize air conditioning as a service that could well be regarded as the basis for a new industry. True enough, much research had already been done, and various forms of air conditioning had been in use for a number of years. But, these applications were of a highly specialized nature, and neither their existence nor their benefits were widely understood or appreciated.

With the advent of air conditioning in public places, such as theaters, large department stores and railroads, its real scope and possibilities began to be apparent, and it took its place in the public press, and in the public mind, as our next great industry. Undoubtedly, our economic situation had much to do with this, since nearly everyone was looking about for some new product that would render a valuable service to its purchaser, have a wide acceptance, and thus, use men and materials in such large quantities as to help materially, to lift us out of the slough of economic despond into which we had fallen.

Looking over what has happened in air conditioning during the last four years, it can be said that air conditioning, as an industry, has not done all of these things as yet, but results so far, and the situation today, are such as to justify the most sanguine predictions that have been made.

Nearly everyone wants to know where the industry stands today; where is it going; what are the problems that must be met now and in the future, and how best to meet those problems. In order to answer these questions as simply and as directly as I can, I shall break down air conditioning service into two parts: Summer Air Conditioning and Winter Air Conditioning.

As you know, air conditioning involves the simultaneous control of the temperature, purity, motion and the humidity of air in occupied spaces so as to obtain the optimum conditions for comfort and health. Because of the requirements of the climate in which we live, this means that during the winter time, we must add heat and humidity, and during the summer time, we must remove heat and humidity, in order to obtain these optimum conditions.

MR. DONOVAN

The two factors of air motion and air purity should be constant the year 'round. Thus, a winter air-conditioning system is one which heats, humidifies, circulates and purifies the air, and a summer air-conditioning system is one which cools, dehumidifies, circulates and purifies the air. The combination of apparatus performing all these functions is called a year 'round air-conditioning system.

The market for air-conditioning applications can be divided roughly into three classifications — the *Industrial, Commercial,* and *Residential*—with the applications being based, in the order named, on necessity, profit, and comfort and health. In the industrial field, or the field in which air conditioning was first used, the control of temperature and humidity in certain manufacturing processes is so important as to make it a necessity, under present-day standards. While this application is the oldest, it does not mean that the industry has developed this market to anywhere near the fullest extent. While considerable application, research and sales work will always have to be carried on in the industrial field, it can be said that there air conditioning has definitely arrived.

By air conditioning for profit, I refer to installations made in theaters, restaurants, department stores, specialty shops, etc., where the added comfort offered to customers has a very definite and favorable effect upon patronage and business. The rapidity with which air-conditioning installations have been—and are being—made in this type of market clearly indicates that in this field, also, air conditioning has arrived. Executives in these various lines are free to state that, in their opinion, no merchandising institution catering to the public, not having air conditioning, can survive the competition of others having air conditioning. This means that every theater, restaurant, specialty shop, beauty parlor, etc., right down to the cheapest class, must soon install air conditioning. In that field, competition among retailers, for the consumer's favor and dollar, gives air conditioning an impetus that is very desirable, indeed.

Considerable sales work will always have to be done to broaden the market to the limits of its possibilities, in the shortest time possible, but it can be said with all certainty that in this field, also, air conditioning has arrived, and justified itself economically.

In connection with this last, it has been said that if all retail establishments were air conditioned, the advantage that now accrues to the air-conditioned store, because of the competitive situation, would be lost, and that it would then become more or less of a financial burden.

Far-seeing authorities in the retailing field disagree with this. In the case of department stores and apparel stores of all sorts, for many years a very appreciable and expensive summer slump was experienced, not because the articles offered for sale were not needed and wanted, but because the average person did not wish to undergo the discomfort

attendant to their purchase. It is felt that, as soon as all stores are air conditioned, women will look forward with pleasure to a day of shopping—and retail sales, generally, will increase.

For example: A certain department store, with which I am familiar, that was air conditioned last year, experienced a 35 per cent increase in the business of its shoe department during July, as compared to the year previous. The management of this store does not believe that this increase was due to their taking business away from other stores. They believe—and an examination of their records indicates this—that the additional sales were made largely to their own customers, who were willing to stop and buy in an air-conditioned room, whereas, previously, their desire of ownership was not sufficient to overcome the inconvenience and discomfort that they had had to contend with.

It is a definite fact that sales in air-conditioned restaurants increase not only in total dollar volume, and in number of customers served, but, also, in the size of the individual customer's check.

In women's specialty shops, the elimination of spoilage loss, by itself, is more than sufficient, usually, to justify an air-conditioning installation.

I mention these things in order to point out that, in the commercial field, air conditioning is here, its status is healthy, and its growth is assured.

The third broad classification of markets is the residential market. In this, I include the installation of air conditioning in offices, as well as in homes. It is true that there undoubtedly is a very definite profit factor in the office field, due to the increased efficiency and productivity of workers. However, since there is not yet available enough data to translate these results into dollars and cents, for the purpose of this paper, office installations are classed as being made for comfort and health, or for the same reasons that apply in the home market.

In the residential field, air conditioning has made the least progress. It is there that the industry faces its biggest promotional sales problem at this time. Installations are being made in increasing numbers in offices, and there is no question but that, when the facts with regard to the benefits of these installations are made available, the profit factor of air conditioning for offices will be so obvious that this type of installation can be moved out of the residential classification, over to the commercial group, where air conditioning is done for profit.

In the strictly residential field, air conditioning for winter has a much wider acceptance than air conditioning for summer. This is, undoubtedly, due to the fact that in nearly all sections of this country provision must be made for some type of heating, and the change to equipment providing proper temperature, humidity, air motion and air purity has not been so great and so radical as in the case of summer air conditioning, or comfort cooling.

The acceptance of winter air conditioning is increasing rapidly, and I look forward to the time, in the reasonably near future, when no home will be built without it.

Summer cooling, using refrigerating machinery, will likewise be accepted, but at a somewhat slower rate.

There are over twelve and one-half million residences in this country having central heating plants, that should—and will—have some, or all, degrees of air-conditioning service.

What is the industry's greatest problem today? As I see it, the problem is one of education, both on the part of the public, and the salesmen who are selling it. More than anything else, there is the lack of trained sales people. Here we have an industry that certainly needs *Mass Selling.* By *Mass Selling,* I mean selling to a market of many people—using sales organizations made up of many people. In other words, *Mass Selling to a Mass Market.*

At the present state of the art, however, conventional *mass* or specialty selling tactics cannot be directly applied. This is true because of the engineering knowledge and qualifications that a person must have, in order to successfully sell in the type of markets that are now active. For example, in an ordinary restaurant, there are usually from six to a dozen ways to lay out an air-conditioning system, to do the job. Each system will vary from the other, in results and in cost. The person who is able to lay out a system that will do the job properly, at the lowest cost, is the one who usually makes the sale.

The matter of profit or loss on the installation is entirely in the hands of the salesman or estimator—since up to 50 per cent, and sometimes a higher percentage of the cost to the consumer, results from the expense of labor, duct work, etc., all of which are variables, applying strictly to the particular job in question.

Even in the application of units, there are enough variables, due to installation costs, that the general practice of the industry is to price each job separately.

Standardized methods of pricing are being developed insofar as possible in connection with the sale of unit type systems. This will help somewhat, as will the introduction of air-cooled, plug-in type room coolers.

All of this means that the sale of air conditioning carries with it problems that cannot be solved by conventional specialty selling procedure. We do know, however, that if the great air-conditioning market is to be approached on a broad scale, it is necessary to put large numbers of sales representatives into the field as soon as possible. These men must be trained to the point that the recommendations that they make to the public will be right. These salesmen must have a better engineering background than is usually the case with specialty appliance salesmen. They must spend a considerably greater period of time in training.

It has always been the custom, when large numbers of salesmen are needed, to have the compensation on a commission basis; otherwise, sales expense would be higher than the industry could stand. Having in mind the financial condition of the average salesman applying for a position, it is absolutely imperative to make it possible for a new man to earn some money almost immediately after he is hired. We have felt, therefore, that our air-conditioning program should be adjusted to two things: *First,* the situation, as applying to salesmen, and, *second,* the status of the market.

The products that are in our line of air-conditioning equipment today are being offered not alone with regard to their service and value to the customer, but also as to how they fit into a program of developing a large number of salesmen to the point that they are competent to cope with the technical, as well as the sales problems in the air-conditioning field.

Realizing that automatic heat is one of the most important and widely accepted parts of complete air-conditioning service, and realizing also, that there had been a certain amount of standardization in sales procedure in this field, our first product was the oil furnace. This was supplemented later with our gas furnace.

The new salesmen selected were of as high a type, and had the best back-

ground as it was possible to secure. They were given a short, intensive training, so that, backed up by a fairly intensive advertising sales promotion campaign and help received from their supervisor and sales manager, qualified men were able to secure an income in a very short time.

We next brought out a device which we called our *Air Conditioner for Winter*. This provides three of the factors of winter air conditioning, i.e., humidity, air circulation and air cleaning.

As the next step, the men were taught to sell this product.

Then, we brought out our *Air-Conditioning System*, which, when used in connection with our oil or gas furnace, supplied complete winter air conditioning through a duct-work distribution system. The layout and sale of this product, required considerable engineering ability, and naturally, not all of the men who could sell furnaces, were able to qualify as salesmen.

After this, we brought out a number of products to perform some or all of the functions of summer, winter and year 'round air conditioning — each product timed so that the simpler devices were made available first.

During all this period, we had under way three types of training courses that the factory made available. One, a strictly sales course; another a strictly engineering course; and a third, a sales engineering course which combined some of the features of both. These were correspondence courses, and the men taking them, were required to send in the proper answers to each lesson, before they received the material for the next.

In addition to this, a series of field training schools have constantly been conducted by our engineers in the field. All to the end that every installation would be as good as we could make it. These schools were supplemented by several factory schools for dealers' engineers. We felt that, this season, the market for air conditioning would be so active that we undertook our most important single training program. In January, we held a one month's school in Schenectady, which was attended by the dealers' sales engineers or the men responsible for the sale of the type of air-conditioning equipment that requires considerable engineering and fabrication in the field, or the type that are now being sold in the largest numbers. Some 225 men were in attendance.

An interesting thing was that over 150 of the men present had been selling some sort of air-conditioning equipment for more than one year. In other words, the men had been brought up to the point where they could properly sell the more complicated air-conditioning job, through a series of steps. Ninety-two per cent of the men who attended the school had had college training, indicating the high type of men that are attracted to the air-conditioning field.

We believe also that the market, or acceptance, for air conditioning, particularly in the residential field, will likewise be developed in steps. For example, when one has installed a winter air-conditioning system in his residence, it is a relatively simple matter to add the compressor and evaporators necessary to transform it into a complete, year 'round air-conditioning system.

Last year, we brought out and sold a substantial quantity of a product which we called an air circulator; which is nothing more than a specially designed fan to be placed in the attic. This product is very easy to buy and does a very fine job for what it is designed to do. It is certainly not a complete answer to summer air conditioning, but we believe that it will make its users conscious of Summer Air Conditioning, and is a good first step in that direction. Also, it provides a fine "bread-and-butter" item for the new salesmen that are taken on in the spring and summer months.

In conclusion, I have attempted to point out, because of the nature of air-conditioning service, and the status of the market, that we have attempted to build our program, having in mind the requirements and habits of the men who sell, and the people who should buy, air conditioning.

We believe that all manufacturers and sales organizations should do likewise, and it will not be long before this infant, though lusty, industry grows up.

Intensive Merchandising in TVA Territory

(Continued from page 146)

wrapped him in the heating pad and waited hours and hours, so it seemed. When midnight finally came my baby was asleep and on the road to recovery. After that I wouldn't be without Reddy Kilowatt in my home for anything."

The other incident occurred in our Nashville office when one of our industrial customers called a power salesman about 8 o'clock one morning and said "do you know this little fellow 'Reddy Kilowatt' to which the power man answered, 'sure I know him, what about it?' The customer replied 'Well, I just wanted to tell you he didn't show up for work this morning.'"

All of these sales activities have, of course, cost money, and plenty of it, but we feel the effort and expense has been worth while. The actual gross dollars spent were $1,043,000, or $11.00 per customer, in 1934 against $522,000 in 1933, and about the same in 1932. These figures include all New Business Expense and all Merchandise Expense, except the cost of the merchandise itself. However, the merchandise expense was, of course, paid for out of gross merchandise profit, with a resulting net profit from the merchandise operations. Thus, the net New Business expense, after crediting merchandise profit, was $340,000, or $3.60 per customer, in 1934 as compared to $285,000 for both 1933 and 1932. The net cost of obtaining new business of all kinds, after crediting this merchandise profit, was 23c per dollar of added revenue in 1934, as compared with 42c in 1933, and 53c in 1932. Larger volume is the key to lower unit cost per dollar of revenue added.

Let me assure you also that there is no trick in the figures of added revenue. A careful analysis shows that the increased revenue on the Company's books, when allowance is made for rate reductions and for time lag in getting the benefit of the new load, is greater than theoretical figures used in reporting the new business additions. In other words, there was a greater increase in actual kwhr sales and revenue than we can account for—which must be due to the effect of ballyhoo, low rates, advertising, or maybe "Reddy Kilowatt" himself.

Our Light Prescribing Program

By M. J. Julian
President, Better Vision Institute

An address before the Second Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, April 24, 1935

AS the climax of 18 months of study and effort, the Better Vision Institute, representing all branches of the optical profession and industry, is announcing a far-reaching educational plan for the professional prescribing of light. This undoubtedly marks a most strategic milestone in the development of the Better Light-Better Sight program.

In a nutshell, the plan means that all professional eyesight examiners are to be urged to prescribe light just as they now prescribe glasses. This program is of far-reaching significance and importance to the public utility, electrical manufacturer, the paint dealer and all others interested in this broad, educational movement. It means that the optical specialist will provide a more comprehensive service to his patients. It means that Mr. and Mrs. John Public will be educated to the need of more light from the one source where it will carry the most weight—the professional man's office. Just as the optical patient now receives a prescription for the lenses necessary to correct visual defects, he will likewise receive a second prescription stipulating his lighting requirements for the various important visual tasks of the day and evening, at home and at work, in the office, the schoolroom, and the workshop.

For years the electrical and power interests attempted to step up the public interest in more and better light. Without exception, their efforts have necessarily carried a tinge of commercialism and of selfishness. It appeared obvious to the consumer that the chief interest of the power and electrical and paint people was to sell more of their products. *Now* the recommendation for better light comes from the professional eyesight examiner in whom the patient has complete trust and in whom the patient recognizes no ulterior commercial motive. Obviously, this recommendation on the part of the optical specialist will carry maximum weight. It will be regarded by the patient with utmost confidence. He will respect the doctor's recommendation as a "necessity."

MR. JULIAN

Accordingly, he will take definite steps to procure the necessary light to preserve and protect his most priceless possession—vision!

But the battle is far from won. It is merely beginning. Its success will depend almost wholly on the cooperative attitude and broadmindedness of the various professional and business groups interested. Overzealousness on the part of utility executives will stifle the movement beyond the shadow of a doubt. The utility executive, the electrical executive, the paint executive, must recognize the ethical and professional phases of the program. They must respect that it cannot be unduly influenced by too much commercial pressure, for the moment the consumer suspects an unduly strong influence and interest on the part of the utility and the other interests outside of the optical profession—from that moment on, the patient will unquestionably lose confidence and respect for the recommendation which the doctor has made to him. And, just as surely will the optical profession and the optical business man soft-pedal the recommendation. The eyesight examiner jealously regards his service as a strictly professional one, just as does the physician or the surgeon. When the physician prescribes necessary drugs, he does it primarily and solely in the interest of the patient's health and well-being. Similarly, when the optical specialist tomorrow prescribes light, he will do it because he believes it will be for the good of his patient. The moment he recognizes that his efforts are being too strongly influenced and steered by the commercial interests in the utility, electrical, and paint fields—from that moment on, will he definitely and positively discontinue his light recommendations. I want to be most emphatic on this point. I want to stress the great importance of cooperation on the part of the utility in order to assist him to promote this educational idea which is of such invaluable benefit to the utility and to the electrical and paint interests.

An aggressive selling job to the optical profession must be done before it will accept the idea of light prescribing. The eyesight specialist must be convinced of the humanitarian value of light prescribing. He must further be convinced that it will not hurt his professional position to prescribe light, and, subsequently, that it will not hurt his pocketbook. Unfortunately, a great many eyesight specialists already state the belief, and firmly back their contentions, that the more light they prescribe the less service and the less glasses they will render their patients. Obviously, this is a strictly selfish viewpoint. Nevertheless, it is one that exists and one that must be confronted squarely. Better light unquestionably means better sight. Just as surely does it mean less eyestrain and fewer visits to the eyesight specialist. The leaders in the optical profession and industry recognize this. As an organization representing all branches of the optical profession and industry, and, further, as an organization representing the constructive and forward-seeing optical interests, the Better Vision Institute has taken the initiative in this movement. It believes in light prescribing. It believes in the entire "Better Light-Better Sight" program. It has

substantiated this belief by the strictly neutral manner in which it has cooperated with the other industrial groups interested in the project. It has further demonstrated its belief by converting its entire publicity and educational program to this one project.

All of its current radio, newspaper, magazine, school and industrial releases are geared to this one theme of "better light and better sight." More than this, the Institute is showing its belief in the movement by doubling its efforts and its expenditures in order that the project may be advanced. As an example, its electrical transcriptions, which last year were distributed to 288 radio stations, are now being quadrupled. They are being produced at the rate of one a week rather than one a month. Leading celebrities in all lines of activities are being enlisted in this program. Currently such noted people as Fannie Hurst, Gene Sarazen, Peggy Wood, George Palmer Putnam, Senator Copeland, and others of this high type, are recording their views on "better light and better sight" for national distribution over the radio.

And so, every phase of the Institute's activities is devoted to this project. Two sound slide films have already been produced. Two more are in the offing. One will feature the "Life of Helen Keller." This production will unquestionably meet with country-wide acceptance on the part of school authorities, civic clubs, social and welfare organizations, and so forth. The Better Vision Institute is working on a plan whereby a nation-wide distribution may be obtained quickly and effectively. Obviously, the film will be produced on the highest and most ethical plane possible, and yet it will tell the story of eyesight conservation through the helpfulness of better light and glasses when needed.

The second sound slide film will be of an educational dealer character. Among other things, it will educate eyesight specialists on this subject of light prescribing. It will dramatize this subject in a way that will prove convincing, provided, of course, that the program is kept constructive and does not go commercially haywire.

Aside from its general program, the Better Vision Institute has taken the initiative in developing the light prescribing program. It has had splendid cooperation on the part of electrical and utility men who have assisted in the development of the necessary light giving lamps, light measuring meters, and in light data and general information. It hopes this cooperation will continue on a thoroughly constructive plane.

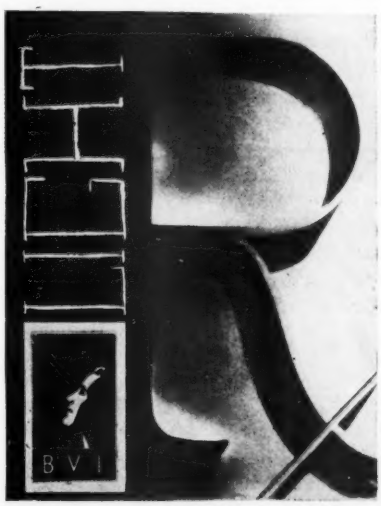
To a man, the Better Vision Institute Board of Directors is back of the project provided it can be kept ethical and professional. It believes the optical profession and industry is offering a major contribution to the utility and electrical interests in endorsing and promoting this light prescribing project.

The plan, as worked out by the institute after over a year's effort, is herein briefly highlighted. First of all, the program is being steered by the Institute. The cooperation of eyesight examiners, opticians, distributors and manufacturers of optical merchandise has been enlisted. Likewise, the cooperation of manufacturers of electrical equipment has been enlisted, with the result that a very simple but effective program has been developed. This program has three phases:

1. The endorsement on the part of the Institute of the necessary light giving lamps and light measuring meters. Two such lamps and two such meters have met with the Institute's endorsement and are receiving the Institute's full cooperation. The first is a variable illuminator developed by the Sight Light Corporation and a light measuring meter distributed by the same company. The second is a variable illuminator developed by Doctors Ferree and Rand, also a light measuring meter developed and distributed by the Westinghouse company.

The second phase is in the development of a light prescribing technique portfolio with necessary nearpoint test cards and light prescription forms by the Better Vision Institute.

The third feature of the program calls for the distribution of the light giving lamp, the light measuring meter, and the light prescribing portfolio as a unit and not as separate items. Further, this distribution is to be made solely through the optical distributor for the period of one year. The reason for this is simple. In the first place, the project must be kept professional, and, consequently, it must be distributed through optical channels. Secondly, the optical distributor has foregone his usual margin of profit in order to encourage the movement and to promote the widespread acceptance of the idea as quickly as possible. His usual profit has been cut to less than half. As a matter of fact, his profit will barely cover his overhead costs which simply means that he is distributing the equipment and the information on light prescribing absolutely without cost to himself. So that, the manufacturers of the lamps and meters, as noted above, have entered into an arrangement with the Institute whereby this distribution plan through the optical distributor is to be maintained for one year. In the event that utility, electrical or paint companies desire this equipment for demonstration purposes, they are to procure it through a recognized optical distributor in their locality. It cannot be purchased directly from the equipment manufacturers or from the Institute. Neither can the equipment or technique portfolio be purchased separately. They must be purchased as a group.



At this point, it is most important to point out that the light prescriptions are to form part of this technique. They are not to be printed and distributed by utility companies. This move would be damaging. It would be contrary to the established arrangement and would create a note of commercialism which would upset the plan entirely. This fact is mentioned at this point because, unfortunately, some utilities have been urged to distribute prescription forms. It must be repeated that this is not to be done. The Institute and the optical profession and industry will wash its hands clean of the entire project should utility companies assume this short-sighted commercial attitude regarding it.

(EDITOR'S NOTE: *The following was visualized by lantern slides.)*

The technique portfolio, which has been completed by the Institute and which will be available for distribution around the middle of May, will contain 32 pages, size 10 by 13 in. This binding, as well as the weight of the paper and size of the pages, will permit the effective display of facing pages which have been developed with this thought in mind. The cover of the portfolio is devoted to an overall artistic design in color, which says, "Light Rx." The inside front cover and the facing page will be covered over all by a mural painting which depicts the his-

tory of light. Accompanying caption will say "Light Through the Ages." The following two pages will be devoted to a specific introduction of the project and to a specific outline of light history. The left-hand page will carry the caption, "The Better Vision Institute presents a technique for prescribing light." A third of this page and all of the right-hand facing page will carry, say, sixteen individual illustrations depicting the specific development of light. Suitable captions will accompany the illustrations.

The next two pages carry the story a step further by bringing light up to the present day and illustrating how light has changed modern living and how life is now lived indoors. A dozen illustrations on indoor life situations accompany the text. The next two pages carry the light story a step further by explaining the elements of light, such as glare, direction, diffusion, shadow, etc. Graphic "before and after" illustrations accompany the text, which is headlined by "Light can help or harm."

So much for a brief "picture" of light which places the optical specialist in a position to have sufficient background from which to prescribe light without intensive textbook study on this project at this time.

From this point on the portfolio is devoted to the specific light prescribing recommendations. The first two pages plan and illustrate the method now followed in examining eyes for the near-point and for the farpoint. Stress is laid on the fact that whereas the specialist recognized the importance of light in his examination, he did not have the facilities for procuring and measuring light as is now made available to him.

The two following pages take a typical patient through the present examination routine. The patient is shown receiving glasses after a thorough examination and being thoroughly satisfied with them. She leaves with the feeling that the glasses are to remedy all of her ills. Subsequently, she puts them to work, as the illustrations show, at her business task, which is bookkeeping, and, later, at her home visual tasks, which are reading, sewing and playing bridge. The patient is shown developing eye strain, nervousness, headaches, and general dissatisfaction, which she proceeds to interpret as a reflection on the glasses and the specialist's service. She complains, the doctor loses prestige and the confidence of his patient, as well as the loss of income as occasionally he has to make new lenses; all because the lighting hasn't been right where the glasses were used. The doctor and patient have both suffered despite a good examination simply because of the lighting inadequacy.

The following pages explain the rem-

(Continued on page 172)

Extensive Housing Program to Feature Electrical Equipment

A HOUSING program of unprecedented sweep and ambition, designed to produce one new house for each 100,000 of population throughout the country by Sept. 1, 1935, has been launched by the General Electric Company with the announcement of its home building program. The general plan is to offer selected builders new ideas, prize-winning drawings, substantial discounts and terms on electrical equipment, and national advertising and support, all in consideration of the construction by these builders of demonstration style houses. The company is already assured of the cooperation of the Federal Housing Administration and of numerous builders, publishers and banks which are anxious to help, it was declared. The houses are to be opened this fall to the public during the months of September and October.

An outgrowth of the recent General Electric architectural competition, in which more than 9000 architects submitted some 2000 sets of drawings, the program will be carried out through committees formed in the various sections of the country during this month. The jury in the competition selected 52 prize-winning drawings which indicated that architects the country over have discarded many old conceptions and that during the lull in building the invention and use of new equipment and materials has continued. The company believes that the changed social and economic outlooks have had their effect and that the material evidence will soon appear in new and different houses.

J. F. Quinlan, who was in charge of the architectural competition, is heading the new organization for the building program, with headquarters in New York. The General Electric Company will be represented in the larger communities by district committees composed of specialty appliance, merchandise, and air conditioning distributors, working with the company's district office managers and field representatives of the various departments. In communities where there are no major distributors representing the company, local committees of dealers are to be organized. The plan will be presented by the committees to the local utility companies for their support, and each committee will select builders in order that construction may start as soon after May 1 as possible.

A selection of the prize-winning plans will be made available to the builders, including working drawings. The company recommends that local architects be employed, at least in a supervisory capacity. Upon their completion, these "New American" style houses will be featured by General Electric in national and local advertising, and representatives of the company will cooperate in publicizing and promoting their sale. Credit will be extended by the company to electrical dealers and distributors to cover the sale of the basic electrical equipment involved.

"The public is receptive," Vice President T. K. Quinn, of the General Electric Company, declared in announcing the new plan. "There is a surprising undercurrent of curiosity and interest in housing. People want to be 'sold.' They can only be sold by actually showing and demonstrating the latest and best in houses and doing it in such a way as to spread confidence and create a demand for them. The new houses will establish new standards and the modernization of old homes will naturally follow on a large scale.

"The public and its interpreters and specialists are now thinking in terms of designing houses from the inside out. They no longer begin with a fixed external picture which carries with it the connotation of a required internal plan. The 'New American' plan requires an approach from the point of view of providing an organization of space for the living of a typical family. It contemplates the coordination of indoor and outdoor living. It is simple in design and emphasizes livability in every possible respect."

The New Electric Range Sales Opportunity

By W. H. Hodge

Vice-President, the Byllesby Engineering & Management Corp.

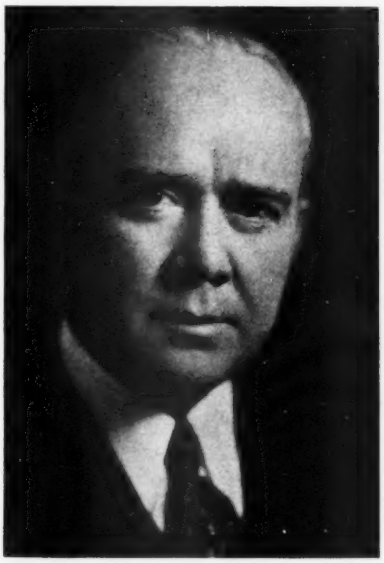
An address before the Second Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, April 25, 1935

A FRIEND of mine declares that when the history of the electrical industry is recorded in the year 2000 by some as yet unborn Mark Sullivan or other historian, 1935 will be set down as the year in which the household electric range abandoned the tank town circuit and went "big time."

Too long the electric range, one of the oldest and most useful household electrical appliances, has been held back in its sales development by irksome barriers. To be sure, many of these barriers are being removed. Electric cooking rates have shown a steady and commendable decline. Difficulties of meeting the cost of range wiring in the home have been met by various methods. From a viewpoint of design and styling, the electric range has made amazing strides forward. And yet we have faced a situation where sales made yearly have been as low as 50,000 ranges. And the first of this year the magazine *Electrical Merchandising* estimated that there were only a million and a quarter homes in the entire country that used electric ranges. This compares with over nine million homes using washing machines, almost ten million homes with vacuum cleaners and six million homes with refrigerators. Check the location of the million and a quarter ranges in use and you will find nothing that approaches national distribution. Electric ranges in the past have had very spotty sales—a few here, a few there and most of them on the west coast.

But now the electrical industry, led by some far-sighted and courageous range manufacturers, this year is embarking on a new and dramatic sales offensive behind the range. But before I tell you about this new electric cookery sales offensive, let me briefly review for you the thinking of these range manufacturers.

Meeting in Chicago last month, the manufacturers who make up the Range Section of the National Electrical Manufacturers' Association took stock of their business. They agreed that general business and their own business were definitely better in 1934 than in



MR. HODGE

1933. They were encouraged to believe this trend was permanent because 1935 so far exceeded 1934 achievements. These range manufacturers reviewed certain significant indices. They found that passenger car sales in 1934 showed a 26 per cent increase over 1933. They found that electric refrigerator sales were 29 per cent better in 1934 than in the year before. They found that life insurance sales had increased 10 per cent in 1934 over the previous year. The value of checks drawn in 1934 showed a 9 per cent increase over 1933. Retail sales, one of the most significant barometers of business conditions, showed a 14 per cent increase in 1934 over 1933. Finally, two important indices showed encouraging increases. Employment during 1934 was 14 per cent greater than in 1933 and payrolls—money to be spent by men and women in America—showed a 27 per cent increase in 1934 over 1933.

Similarly, 1935 indicators gave promise of a continuation of the upward trend of 1934. For example, these range manufacturers found that grocery sales in January of this year were 4.5 per cent ahead of January last year. They found that February department store sales were 5 per cent ahead of February of last year. Mail order house sales were between 8 and 10 per cent ahead of last year. Rural general merchandise sales were ahead of last year.

Turning to the electrical industry itself, these manufacturers found that the number of wired homes had increased from 19,849,000 in January, 1933, to 20,520,000 in 1935—more homes wired for electric service than ever before. These range manufacturers found also that wired homes were using more electricity. Based on the studies of the Edison Electric Institute, they found that in 1933 the average wired home used 606 kilowatt hours of electricity, whereas in 1934 the average consumption of electricity by the wired home had increased to 630 kilowatt hours.

Coming closer to electric cookery, these manufacturers found that acceptance for the electric range had grown considerably in 1934 in such widely separated spots as Portland, Ore.; Providence, R. I.; Glendale, Calif; Atlanta, Ga.; Omaha, Neb.; Boston, Mass.; Minneapolis and St. Paul, Minn., and other places too numerous to mention. This acceptance of the electric range resulted in splendid sales for the year 1934. Last year 123,000 household electric ranges were sold, more than the combined sales of ranges in the years 1932 and 1933.

Electric range sales in 1935 have started off with a bang. January shipments are reported as 83 per cent ahead of the same month last year. Conversations with leading range manufacturers show that February and March shipments and orders continue to show increases over last year.

Other favorable factors convince us that there is an opportunity in 1935 to break all existing electric range sales records. For example, the new emphasis on home building and modernization by the Government and the building trades is giving an impetus to electric range sales. Also, with the increased saturation of such products as electric refrigerators, vacuum cleaners and washing machines there is opportunity in the

electrical industry for more sales emphasis on the range.

The electric range manufacturers have decided that the condition of our own utility industry was most favorable to range development. They took note of widespread rate reductions made by electric light and power companies last year. They knew that executives and commercial managers of the utility companies realized the necessity of building the domestic load to compensate for these domestic rate reductions.

The manufacturers were encouraged in their belief that the range faces a good year in 1935 when they remembered the statements of such industry leaders as R. F. Pack, P. S. Arkwright, Wendell Willkie and J. F. Owens that the promotion of electric ranges and electric cookery offers one of the best means of increasing the domestic load in 1935.

Faced with these far more favorable conditions than have ever before existed, these manufacturers decided that the time was ripe for a sales offensive on a new enlarged and dramatic scale.

Their opening gun in this 1935 electric range selling offensive will be a national advertising campaign. Three of the largest range manufacturers—the Edison General Appliance Company, the General Electric Company and the Westinghouse Electric & Manufacturing Company—concentrate their electric range advertising in the July issue of *McCall's Magazine*. This will represent five pages of range advertising and will be distributed to more than 2,300,000 families the first week in June.

To you who are familiar with the advertising done in the past by electric refrigerator manufacturers in national magazines, this electric range advertising may not seem over-impressive. However, it may help you to appreciate the importance of this advertising when I tell you that these five pages constitute the largest amount of electric range advertising that has ever appeared in a single issue of any consumer magazine. These five pages of range advertising far outnumber the total number of pages used to advertise electric ranges in all consumer magazines during the entire year of 1934.

For the first time in the history of the range business, an impressive amount of range advertising is appearing in a national consumer publication, reaching into every community in the nation.

The selection of *McCall's Magazine* to carry this electric range advertising is a fortunate one, without any disparagement of other magazines. It is, of course, a woman's magazine, and it is women who use ranges, who get discontented with their present ranges, who must be made to want new ranges, and who have a large voice in the selection of the type of new range they buy. Over a period of years, this magazine has built up among its more than 2,300,000 families a very great interest in food, food preparation, cooking problems, ranges, and in the use of household electrical appliances. The July issue of this magazine which will carry the electric range manufacturers' advertising will also contain as an editorial feature in its Homemaking Section an article on Kitchen Planning, a goodly part of which will be devoted to the range. Succeeding issues will also carry editorial articles on electric cookery prepared by Home Service women in the utility field.

A feature article on Electric Range Surface Cookery written by Miss Valentine Thorsen, Home Service Director of the Northern States Power Company, will appear in *McCall's* September issue, out in August. This will be followed by another feature article dealing with Electric Range Oven Cookery and prepared by an equally prominent Home Service woman from our own electrical industry. These articles are part of a series of McCall Method features on the use of electrical appliances being published regularly. These articles are all prepared by utility Home Service women serving as guest editors. Miss Ada Bessie Swan of the Public Service Electric & Gas Company of New Jersey and Miss Fern Snider of the Georgia Power Company have been recent contributors of electrical articles.

I have long had the feeling that we expect advertising alone to do a complete selling job for us. Advertising is a potent sales force. But advertising backed up with intensive selling work is far more effective. So I'm encouraged to learn that this new 1935 electric range sales offensive does not stop with this national advertising.

Men have already been sent into the field to call on the distributors, dealers and utilities selling electric ranges in every important community throughout the country. Armed with a special electric range portfolio, they will explain the purpose of this range sales offensive, pointing out the present opportunity for increased range sales. These men will also suggest ways and means of tying in local activities to the national campaign. Reports already received from the field indicate an enthusiastic reception for the plan.

In addition to these personal calls on the principal utilities, distributors and dealers selling electric ranges, thousands of copies of a printed booklet will go out next month. These booklets will contain preprints of the electric range advertisements in *McCall's* July issue and will contain definite suggestions for local sales activities embracing window streamers, local newspaper advertising, store displays, local radio advertising, cooking schools, and so forth.

Finally, of course, the individual electric range manufacturers with their own field representatives will work to make this new national campaign a success.

I am sure you are all most encouraged by this evidence of a new drive on the part of range manufacturers to sell their product. Too long the electric range has been a step-child in the electrical appliance field. Now at last it gives evidence of stepping up into volume sales.

We in the utility field have it in our power to reap great benefits from this range selling drive. In the past there have been other efforts to increase range sales. Most of them we have supported, some with excellent and others with indifferent success. Here is a new and dramatic range sales drive—a drive that will give American kitchens the most satisfactory kind of cooking. It is a sales drive that will help us retain and increase the domestic consumer revenue that might otherwise be lost through rate reductions.

We hope you will increase your range promotion and selling activities in June and July when this range advertising in *McCall's* is being read. We hope you will time your local newspaper advertising so as to have at least one advertisement featuring electric ranges appear as nearly as possible to June 10. We urge you to follow up this initial newspaper advertising with additional newspaper tie-in.

Also tie up to the national advertising campaign on electric cookery with window and store displays. The three range manufacturers are providing special window streamers which are enlarged reproductions of the border that appears in each range advertisement. Other forms of advertising and promotional work should be used to support the movement such as direct mail, news-

(Continued on page 158)

Kitchen Modernizing—Is the Time Ripe for Promotion?

By R. E. Imhoff

Sales Manager, Merchandising Division, Westinghouse Electric & Mfg. Co., Mansfield, Ohio

An address before the Second Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, April 25, 1935

ISN'T it true that our basic problems remain about the same from year to year? We have had the problems of finance charges, the unprofitable customer, the increased sale of small appliances, dealer cooperation, etc., in some form or other ever since I can remember.

We devote a lot of thought to these problems; we get together in meetings like this and talk about them, and out of this thinking and talking comes a fresher and clearer viewpoint for many of us and new ideas and methods of approach, which result in the end in progress. Most of these problems never will be finally and entirely solved to our satisfaction because their solution is dependent upon the complete and absolute utilization of electrical energy in our homes. The thing which gives us hope and courage and brings us back time after time to this and similar meetings where these problems are discussed is the unquestioned fact that we do make progress.

It is quite easy for me, or anyone else, to tell you how much progress we have made in the past in selling appliances to the kitchen part of the home market. It is a matter of record that in 1931, 965,000 electric refrigerators were sold; 770,000 were sold in 1932, 1,065,000 in 1933, and 1,450,000 in 1934. We know that, up to January 1, 1935, a total of 7,143,000 electric refrigerators had been sold, even if we can't be so positive about how many of them are still in use.

We know that 115,000 electric ranges were sold in 1931, 60,000 in 1932, 50,000 in 1933, and 120,000 in 1934. We know how many electric dishwashers and how many electric water heaters were sold in any year in the past, but knowing these figures doesn't do us much good. What we all want to know is—how to speed up the sale of these major load-building appliances so some of our present-day troubles and some of the troubles we anticipate will not be so severe. We are all trying to find a way to do this. Every utility has some kind of a merchandising plan or program. Depending upon a lot of factors with which we are all familiar, these plans vary widely in method and effectiveness, but not in ultimate objective.

MR. IMHOFF

Every manufacturer of major appliances has at least one plan designed for the utilities and some of the manufacturers are so nimble and prolific they will make you a plan while you wait.

But, conspicuous by its absence today is any semblance of a promotional plan or activity to increase the sale of major appliances which the industry collectively is behind. This condition has been talked about informally by both manufacturers and utility commercial men, but no very definite opinion has crystallized. One specific idea which has been talked about during recent months is a promotional activity built around the Electric Kitchen. Let's consider the possibilities of such a program and, remember, please, any views or opinions I express are individual and in no way formally representative of the views of any group.

For such a promotional activity to be successful and worth its cost, three things are necessary. First, and most important, it must have sponsorship. The plan must have a home, a place to start from. We may assume without further discussion, I believe, that the Institute will lend it sponsorship.

The other two things such a plan must have are the enthusiastic support of a representative group of manufacturers and support and local direction and guidance by the utilities. I think you will agree there is no difference in relative importance between these latter two needs. If one or the other is lacking in proper degree, nothing worth while can be accomplished.

The question is, can we be reasonably sure such an activity will have support from these two directions? Frankly, I don't know, and I suggest we find out. The manufacturers' picture looks about like this to me. The makers of ranges, refrigerators, water heaters, and dishwashers would benefit from such a plan in about the order named. Take the refrigerator manufacturers first. To be perfectly blunt about it, they are not very "industry minded."

In spite of the New Deal, they are still "rugged individualists" and, furthermore, individually rugged and willing, apparently, to struggle along against the hazards and vicissitudes of competition, selling four refrigerators in one, super freezers, rollators, hermetically sealed mechanisms, and five-year protection plans. Today they don't even advertise, promote, and sell electric refrigeration. They did that job when the Refrigeration Bureau was in existence, and today they "kind of stick their thumbs under their suspenders" and at least imply—"Why don't these range guys go on out and sell electric cookery?" You see, you utility men are cus-

tomers and they are nice to you, but if you are exposed to them as a competitor they act naturally. But they are not hopeless and maybe I misjudge their frame of mind and attitude in this case.

Take the range manufacturers next. They have the most to gain immediately from such a plan, in my opinion. They admit that in most communities electric cookery needs to be sold before electric ranges can be sold in volume. They admit the feasibility of an industry plan to sell electric cookery and have just made a very fine start with a plan which Mr. Hodge described to you here this morning.

So far as the water heater manufac turers are concerned, I am frank to say I have no idea what their attitude is, or would be. In some sections of the country only a very small percentage of water heater installations are in the kitchen and in other sections most of them go into kitchens. I, personally, believe the water heater manufacturers have enough to gain to make it more than worth their part of the cost of supporting this activity.

We can pass the dishwasher manufacturers for obvious reasons.

Now, in case you are interested, my personal opinion is that a properly planned and properly organized promotional activity, built around the electric kitchen, would be a good thing. I think the time is ripe. Let me give you just two reasons why I think so.

Last October the Westinghouse Company ran a single page of advertising in *Better Homes and Gardens* featuring an electric kitchen. The advertisement showed a picture of a typical, standard, modern kitchen with the electrical appliances placed in proper and scientific relation to the rest of the pictures. The copy was brief and the readers were asked to write to our Kitchen Planning Department if they were interested in having such a kitchen. There had been no previous build-up. No Westinghouse advertising of any kind had been run in this magazine in earlier months of 1934. It was merely a trial balloon to see what would happen. To date 3113 inquiries have been received. Most certainly this result proves keen, intense interest in kitchen modernization on the part of the general public represented by the home owner.

Reason number 2 is this—a couple of months ago we organized and conducted at Mansfield a "Kitchen Clinic." Its purpose, as outlined to the people in attendance, was this:

"To clarify certain phases of the activity centering about the promotion, development, and use of the complete kitchen as a unit. It is also the aim of the Clinic to adopt or agree upon certain standards so that a uniform and well-organized plan may be presented to the American homemaker. In other words, it is the purpose, not only to establish a nomenclature for the industry, but to agree upon a standardization of equipment, design and functions insofar as is possible and advisable.

"It is the belief among many of the leading exponents of the complete kitchen unit that if the ideas and experiences of those who have been taking a lead in the kitchen planning can be crystallized to dominate or direct the promotion and development work, that this new activity or industry will receive material benefit."

Among others attending the Clinic were:

Mrs. Mildred Maddock Bentley, *Delineator;* Miss Eloise Davison, E. H. & F. A. Miss Katherine Fisher, *Good Housekeeping Institute;* Mrs. Mary Davis Gillies, *McCall's Magazine;* Mr. Lurelle Guild, *Pictorial Review;* Miss Jean Guthrie, *Better Homes and Gardens;* Miss Faye I. Hamilton, *McCall's Magazine;* Mrs. Frances T. Heard, *House Beautiful & Home & Field;* Mr. T. L. Henderson, *Good Housekeeping Institute;* Miss Julia Bliss Joyner, *Pictorial Review;* Mrs. Nell B. Nichols, *Woman's Home Companion;* Miss Grace L. Pennock, *Ladies' Home Journal;* Miss Demetria Taylor, *Good Housekeeping Institute.*

Certainly these names read like a "Who's Who" of the expert homemakers of America and when they are willing to devote two entire days to the problems of kitchen planning and promotion, the subject must be of major interest to the people whom they serve. The electrical industry has a chance to benefit and profit from this interest in exactly the degree to which the industry is organized. Don't forget that a scientifically planned kitchen does not require an electric refrigerator or an electric range. Argue all you want to about a kitchen not being modern unless it is completely equipped electrically and the fact still remains that millions of people believe differently.

This is my suggestion. You utility men here are truly representative of the commercial organizations of the operating utilities. Decide whether or not you want a promotional activity built around the Electric Kitchen. If a majority opinion is that you do not—that's that. If a majority opinion is that you do, then put it up to the manufacturers through regularly organized channels—specifically, through NEMA. Along with the proposal to NEMA should go a pledge that the operating utilities will actively and wholeheartedly give such an activity leadership and support in the field. Without such support and leadership the activity will fail, no matter how well it is planned and organized. The manufacturers are entitled to this assurance before they put their money on the line to get the activity started.

If the NEMA sections and divisions whose members may reasonably be expected to lend support to the activity decide against it, there is still the opportunity to approach some of the manufacturers individually and enough of them may be favorably inclined to make it feasible to go ahead. Those who don't would then get a free ride, but, like death and taxes, the "thumbers" will always be with us.

Range Sales Opportunity

(Continued from page 156)

paper articles on electric cookery, demonstrations, cooking schools and particularly special range sales campaigns.

Speaking for our own properties, we are going to push electric ranges this year as never before. We expect to make special range sales efforts at the time this national range advertising in *McCall's* appears. May I ask that you, too, go back to your own cities and towns determined to get behind this movement—determined to put the electric range in its rightful place as one of the most important household electrical appliances.

"SPENDERS ALL"

"If the capital expenditures plus the capital and operating losses of all Government-owned and operated business enterprises, whether they be picayune retail enterprises or some great public service development, could be subtracted from our annual tax bill, it would make a most appreciable hole in it. It is one form of pernicious spending that can easily be stopped if our legislators can be persuaded to resist the call of political expediency and the vote-getting possibilities of special groups."—*From "Spenders All," by Ernest Greenwood.* Published by D. Appleton-Century Co., New York. (To be reviewed in the next issue.)

Testimony of F. T. C. Attorney Answered

By Bernard F. Weadock

Vice-President and Managing Director, Edison Electric Institute

On April 30th, Mr. Weadock presented to the Interstate Commerce Committee of the U. S. Senate a statement in reply to certain testimony made before the Committee on April 17th by Col. William T. Chantland, Attorney in Charge of the Utilities Investigation of the Federal Trade Commission. Colonel Chantland's testimony was given during the course of the hearings on the Wheeler-Rayburn Utility Bill. Excerpts from Mr. Weadock's statement are printed herewith. The full text of his statement may be secured upon request to the Edison Electric Institute, 420 Lexington Avenue, New York, N. Y.

Advertising; A Legitimate and Accepted Attribute of Business

Expenditures for advertising are referred to by Col. Chantland in the following terms:

* * * "the utilities industries were reported by their own men to have spent in the neighborhood of 28 million dollars for advertising. I need not tell you why. But I think that has to be considered in the matter of the influence it has on the program of the utilities and of getting things favorable to the utilities."

This description of the subject constitutes not only a stigma upon all advertising as such, but is also a misinterpretation of how and why the money was spent. Throughout the years of the Federal Trade Commission's investigation, it has consistently sought to convey the impression that any advertising by any utility company was reprehensible in itself and that all such expenditures constituted "propaganda."

The 28 million dollars included not only the gas and electric utilities but all public utilities, including the telephone and traction companies as well. (Testimony of Bernard J. Mullaney, F. T. C. Exs. Pt. 2, p. 127.) The gas and electric utilities expended only one-third of this total, or less than one-half of 1 per cent of their gross revenue.

Much of this advertising was to promote the sale of household appliances. The following table gives an analysis of the purposes of the advertising expenditures of the electric light and power companies under four general heads:

	Per Cent
Advertising electrical appliances...	43
"Service building" in other ways...	10
Advertisement of securities.....	10
Institutional or "good-will" advertising	37

The money spent was for salaries, overhead, art and mechanical work, billboard and poster displays, as well as payments for space in publications.

Advertising expenditures of the industry must, of course, be increased if the objective of further increase in the use of electric service is to be attained more rapidly than heretofore. The sound business practice of advertising to promote the greater acceptance and use of electric service is surely not a matter for condemnation.

Employment of College Professors

In the eight years of its investigations, the Federal Trade Commission has given much publicity to the employment of college professors for special research by utility companies.

This was referred to by Col. Chantland in the following manner:

"Chairman Wheeler—Q. Was any retainer given to professors?

"Col. Chantland—A. Yes, sir. One man, Dean Ruggles, was retained for the specific purpose of making a survey of a good many books, and he went around the country and held meetings."

The statement about Dean Ruggles is untrue. He had nothing to do with a survey of books. He was retained and commissioned to make a "Survey of the Extent of Instruction in Public Utilities in Colleges and Universities, of the Industry's interest in College Graduates, and of the Willingness and Ability of Utilities to Cooperate With Higher Educational Institutions." This was published under that title by the NELA in 1929.

Inasmuch as this subject has been introduced by Col. Chantland in the above reference and by his allusion to Prof. Stewart, discussed later, it is only fair to point out some of the fundamental principles of the relationship between the electric light and power industry and the colleges and universities of the country.

Detailed study of the Federal Trade Commission record, from the inception of its investigation, shows that instructors of various rank, in many colleges, were engaged at various times in work by the utility companies. The record shows that of that number, the vast majority received no compensation of any character, but were reimbursed in small amounts for their traveling expenses for attending meetings; that the engineering and scientific schools were engaged largely in research upon the following subjects, the cost of which was borne either by individual companies or the trade association interested in such work:

Steam engines, turbines and their accessories.
Hydraulic turbines and water wheels.
Interference between electric power and telephone communication.
Accident prevention.
Accounting methods.
Poles and wiring.
Farm electrification.

The Employment of College Professors in Professional Work by Corporations Is an Accepted Tradition of the Teaching Profession

Some of the largest universities not only permit, but even encourage, their professors to hold positions in consulting capacities, accept retainers and perform research for commercial and business firms. Almost every annual report by the deans of the various engineering departments points with pride to the activities in outside commercial work engaged in by their instructors during the year.

The character of the references by the Federal Trade Commission to college professors and to their employment by the electrical industry is but another instance of the innuendoes deliberately manufactured to cast aspersions upon the industry and men of reputation and integrity in the educational field.

In 1928, as was stated in the following report, "the charges and innuendoes directed against members of the teaching profession finally grew to such a volume as to court action by the American Association of University Professors." In 1930, a report was rendered by a special Committee, appointed to investigate and report upon the ethical principles involved in the employment of college professors by utility companies. This was prepared by Prof. E. R. A. Seligman of Columbia and approved by the Association's Committee on Ethics, consisting besides Prof. Seligman, of Professors C. P. Costigan, California; G. W. Cunningham, Cornell; John Dewey, Columbia; E. A. Ross, Wisconsin; C. F. Taeusch, Harvard; C. J. Tilden, Yale; J. H. Tufts, Chicago, and U. G. Weatherly, Indiana.

On the broad subject of the college professor leaving the sheltered cloisters of academic thought and using his professional talents for the benefit of the world at large, the report states:

"The attitude which is taken by some that a professor should do nothing but teach and should refrain from any outside employment or activities is not only foolish but short-sighted. In the first place, no matter what his field, he will be a much better teacher if he has some contact with actual life. Moreover, while insistence on non-participation in extra-curricular activities would be unfair to his institution and his students, it would be equally unjust to the outside world that needs his help. More and more has the business man, like the statesman, come to rely upon the expert for advice if not for guidance. To say that a professor should refuse to carry on a piece of research or to give his opinion on some complex problem to the individual or the corporation would be about as intelligent as to say that a famous physician should restrict his activities to his university lectures and refuse to treat any outside patient."

The report emphasizes the very natural resentment of the academic world against the prevalent misuse of the word "professor" and the characterization of everybody upon a college payroll by that title. It goes on to say:

"The second point on which confusion has existed lies in the failure of the public mind and of the Trade Commission itself to distinguish between the various categories of academic instructors. It is an interesting fact that in almost every case of alleged improper activity the individual in question was either a subordinate instructor or connected with the extension department or with some technical day or night school; and that, on the contrary, very few cases are noted of alleged impropriety on the part of regular instructors in the academic departments or of teachers of economics in the schools of business or elsewhere."

Had Col. Chantland desired to present your Committee with all the facts, it would only seem logical that he should have referred to the original testimony of the various hearings, which gave full details of who the professors were, what they did and their compensation, if any.

Schools and Textbooks

The allegation of subversive activity on the part of the electric industry in connection with schools and school textbooks is described in the testimony of the witness in such manner as to be very misleading.

In the background of the survey of textbooks which has been undertaken was a conviction on the part of the utility industry that many of the textbooks containing factual information on the electric industry were either far behind in reporting technical progress in the industry or else contained incomplete or inaccurate data. The survey bore out the truth of this conviction.

The particular reference by the witness to Ginn & Company loses its force in view of the disclosure in the record (F. T. C. Vol. 4, p. 620) that only one chapter of one book was submitted for criticism and from the record it is impossible to state what, if any, correction was made as a result of this submission.

The veiled charge of improper conduct in the matter of correction of textbooks seems to have lodged itself on the electric industry alone, notwithstanding the fact that many industries undertook the correction of informational material in the same way. The National Retail Hardware Association, for instance, examined 110 arithmetics and found that 90 of them contained inaccurate statements. Following this survey by the Hardware Association, 4,560 corrections were made and reported to 26 publishers. (See Bulletin 1928, No. 4, issued by Department of Interior, Bureau of Education, entitled, "Commercial Education in 1924 and 1926" by S. O. Mallott.)) (See also F. T. C. Vol. 18-19, pg. 71.)) The Department of Interior on this subject made the following observation:

"The responses from the authors and publishers have proved the worthiness of the business men's efforts to put commercial education on a fact basis."

The Federal Trade Commission, in Volume 71-A, pg. 4, admittedly recognizes "the industry's right to make public an impartial presentation of the essential facts of its industry." It would seem that the examination of textbooks for the purpose of making available up-to-date and correct factual information came within this right. The source of all material supplied the schools was legibly printed on such material. These informational pamphlets were not placed in any school except after request by the proper authorities. The total number of requests from teachers, superintendents, principals and schools amounted to 7,937.

Commissioner McCulloch, at the time of the entering in the Federal Trade Commission record of these letters and requests, stated, "It is all right to show, as you have shown from time to time, that these pamphlets and things were sent out upon request." (See F. T. C. Vol 18-19, pgs. 34 et seq., 244.)

For a long time these pamphlets, without any basis therefor, have been referred to as being a method of influencing school children to the viewpoint of the privately owned public utilities on the question of government ownership. The innocuous character of the pamphlets and other material on the issue of Government Ownership was attested by Judge Healy in F. T. C. Vol. 18-19, pg. 43, in these words:

"As to these pamphlets, I can say that my memory is that there is no direct mention of government ownership or municipal operation."

Judge Healy expressed himself in the same way in F. T. C. Vol. 4, p. 561, when he questioned Dr. Blain as follows:

Q. "I wonder if you will agree that there are arguments and statements in opposition to government ownership and government in business in this document.

A. "No, sir. I think there is not a single reference to government in business.

Q. "Well, maybe not—."

In the report by the Committee on Propaganda in the schools, presented at the National Meeting of The National Education Association, July, 1929 (F. T. C. Vol. 18-19, p. 224, Association Ex. No. 8), a very thorough study was made of the information supplied by outside agencies to the schools. It was found that in one city the materials ran the whole gamut of the industrial life of the United States and also included material on banking and insurance institutions. As a final consideration, on outside agencies submitting informational materials, the report made the following observation (p. 33):

"The school would suffer great harm if it were to shut itself off from real life simply because some of the influences which seek to gain admission to the classroom are not useful in educating children."

Propaganda: "He That Is Without Sin, Let Him First Cast a Stone"

In characterizing the purposes of the utility companies as "the minimizing of criticism and both specific and general, direct and indirect, opposition to public ownership and (to) advocacy of it," Col. Chantland went on to state that:

"To attain this objective these associations and committees employed, as Mr. Oxley expressed it, every known means of publicity 'except sky-writing.' And they made contacts with all kinds of civic organizations, chambers of commerce, Rotary Clubs, Kiwanis Clubs, and particularly with the schools and the press, even at times with the clergy. * * *" (p. 94.)

If contact with chambers of commerce, Rotary and Kiwanis constitutes an offense, then all of the business men of this country stand convicted. Without the legitimate use of advertising, many of the largest businesses of the country would wither away.

That which is so roundly condemned by the Trade Commission in connection with utility companies has been made the prevailing practice of the Government itself.

I have only to call to your attention the publicity of the Tennessee Valley Authority. The Chattanooga *Times* of February 7, 1935, prints a list of more than 120 public appearances before all manner of organizations of the representatives of the TVA and EHFA between July 7, 1933, and July 31, 1934, alone. Few publications of any utility have ever attained the circulation and the dissemination among school teachers and school children than did the sixteen handsomely illustrated pages of the December, 1934, issue of the *Journal of the National Educational Association* with their detailed suggestions as to the methods by which every school in the United States should make use of this information.

In its summary report (71A) the Federal Trade Commission itself states that:

"The Commission recognizes the industry's right to make public an impartial presentation of the essential facts of its industry so long as it does not impose a burden on the rate payer, or deceive either the investing or consuming public. The great mass of the public has no definite crystallized views as to the merits of public ownership or operation of utilities. Yet the public is the final judge on that question and in reaching a decision must rely largely upon the representations made by the proponents and opponents * * *." (P. 4.)

It would seem that throughout its hearings, news releases, and the testimony of its representative before the Senate Committee on Interstate Commerce, the Commission might with greater propriety confine itself to "an impartial presentation of essential facts."

It seems a great pity that for so long a period the Federal Trade Commission should have subordinated facts to political expediency. Its investigation up to the present moment has placed this industry before a mirror which magnifies and emphasizes the bad features and blurs out the good ones. An investigation which has run for years has been restricted purely to a book study of a most constructive, progressive and efficient public serving industry.

To complete the investigation without a true evaluation of the accomplishments of the electric industry when only technical and little understood bookkeeping and accounting criticisms and implications have been forthcoming is a failure of duty. In presenting these criticisms it would have been a matter of great public interest and concern to have developed the economic conditions which existed at the time many of the things complained of transpired. The difficulties which were being encountered at that time, together with the engineering and operating accomplishments, would make a thrilling story in itself. An understanding of the vision, courage and fortitude of the pioneers who developed our electric industries and thereby brought one of the greatest gifts to the people that has ever been bestowed might well have brought praise to replace or at least offset these accusations.

The Commission's summary report states further that:

"One important element in weighing any testimony is to know whether the speaker or writer is giving his own personal knowledge or opinion, or merely serving as a mouthpiece for another. * * * Concealment or non-disclosure of such facts is taking an unfair advantage both of one's opponent and of the public to whose judgment they appeal. * * *."

Again, I call to your attention the article in the *Journal of the National Education Association*. Its author, Walter E. Myer, was described as "Editor, *The American Observer*" and the editorial note stated that "Here * * * is the story told by a keen student and observer, after spending weeks in the Valley gathering material." The article failed to disclose that Mr. Myer was under the pay of the TVA when he wrote the article.

"Prudent Investment" as a Basis for Alleging "Write-Ups"

Col. Chantland proclaims the acceptance by the Federal Trade Commission of the "prudent investment" theory of valuation. "We believe in honest prudent investment." (p. 112.)

The Federal Trade Commission has never been empowered to place a value upon the properties of the utilities. Despite that fact, it has adopted the theory of the Interstate Commerce Commission and some others contending for prudent investment.

It has been by the use of the "prudent investment" formula that the Federal Trade Commission has been able to arrive at some of the figures of its alleged "write-ups" and by the use of these "write-ups" to bring discredit upon the integrity of the entire public utility industry.

Inasmuch as the adoption of "prudent investment" as the basis of valuation has become one of the features of the Public Utility Act of 1935, it is of the greatest importance to point out the wide divergence of the theory of "prudent investment" with the actual accepted methods of valuation as determined by the various regulatory commissions and upheld by the courts over a long period of years.

The language of the present Act stated that the basis of value shall be "actual legitimate prudent original cost as defined and interpreted in the 'classification of investment in road and equipment of steam roads,' issue of 1914, Interstate Commerce Commission" (Sec. 201, (13) p. 80). In ascertaining this cost, the Commission may require a company "to file an inventory of all or any part of the property of the utility *and the original cost thereof*, as defined by this rule." (Sec. 211b, p. 117.)

The "prudent investment" theory has yet to win judicial approval. It should be obvious that over a long period of time fair value, including all the elements that enter into it, constitutes the only sound basis for rate making. The courts have always so held. Up to the present time "prudent investment" has largely constituted a vague and ill-defined method seized upon by critics of the industry as an excuse for disregarding the fact that construction costs during the World War rose sharply to a new general level which has largely been maintained since that time.

No matter how desirable in the minds of regulatory bodies in Washington, the "prudent investment" theory is in conflict with the law of the United States.

The Federal regulatory bodies have continuously fallen into the bad habit of asserting their opinions, theories and wishes into their findings, opinions and proposed legislation despite the fact that such opinions and theories are contrary to established law as defined by the highest judicial tribunal in the land. That the drafters of the present bill followed this habit of flouting the decisions of the Supreme Court when contrary to their plans is best attested by the decision of the U. S. Supreme Court in the O'Fallon case, 279 U. S. 461. . . .

Superiority of State Regulation Over Federal Bureaucracy

Col. Chantland quotes from page 8 of F. T. C. Vol. 71A:

"In the campaign there inhered persistent efforts to prevent effective, or any regulation of utilities for the protection of the public, either of the consumers as to service and rates, or of the investor as to character and bases of securities issued." (p. 93.)

again on page 150 he states

"It is, of course, possible to say for the balance of the states that the authority of the commission to regulate rates and matters

affecting the financial status or service of the operating company now gives implied authority to scrutinize contracts and commercial dealings with 'affiliate' controlling or holding companies, but as a general proposition it cannot be said that the commissions of these states have exercised any authority or jurisdiction beyond the express mandate of their laws."

Throughout its recent press releases, the Federal Trade Commission has consistently sought to prove that "write-ups" and other alleged unethical practices of holding companies have increased rates to the public.

Many of these statements, reflecting upon the character and integrity of the officers of the various State Public Utility Commissions, are unreservedly and unqualifiedly false. It pre-supposes on the part of the State Commissions the same attitude attributed by the Federal Trade Commission to the utility companies themselves; namely, that if an opportunity to do wrong was presented, this opportunity has been availed of and the wrong has been done.

Supply and Regulation of Electricity Is a Strictly Local Matter

It is unquestionably in the mind of the public that the supply of great quantities of electricity to all points of the United States is already, or shortly will be, the established practice and that this great quantity of power goes without regulation of any of the state or local public service commissions. The picturesque and dramatic aspects of the transmission of electricity have been so publicized that the public has come to conclude that there is no limit short of the continental confines of the United States to the transfer of energy.

Nothing could be further from the truth.

Far from moving over great distances, most of the electricity now used in the United States never gets more than 20 miles away from the power house where it was made. Notwithstanding the existence of thousands of miles of transmission lines and the occasional transfer of power over quite a distance during an emergency, the travel of the average kilowatt-hour produced in the United States from its point of production to its point of consumption last year was only about 22 miles.

It is apparently the aim of the Federal Trade Commission to support the provisions of Title II of the Public Utility Act of 1935. Under these conditions, on top of the existing state and municipal regulatory machinery there is added a distant Federal bureaucracy; with its own rules as to rates, service, and accounting and with power of veto over any decision of the State or municipal bodies which might be in conflict with its policies and purposes. In place of local regulation, with first-hand knowledge of conditions, there is set up another body in Washington having superior jurisdiction, but so far removed from the actual scene of events as to make its operations interminable, mechanical and swayed by political prejudice. The results would be that many companies, though considering themselves strictly intrastate, would find themselves, nevertheless, drawn into federal regulation by the Washington Commission in about the same fashion as intrastate railroads have been under the Interstate Commerce Commission.

The result to the consuming public would be as disastrous as to the utility companies themselves.

Progressive management under private ownership would be supplanted by government bureaus far removed from local responsibility. In place of being helped by local men, intimately acquainted with local conditions, the consumer would be compelled to journey to Washington and there to wander about in the endless corridors of bureaucracy and be passed from pillar to post before he could find an official who could authoritatively answer even his simplest complaint.

A practical example of what awaits the public in the matter of electric service under the control of Washington officials is given by the experience of the various telephone and telegraph companies following the partial destruction of their lines in Delaware and Maryland during the severe storm of January 22-24, 1935 (as described in the April, 1935 issue of "Telephone Engineer"). Although the companies sought the Federal Communication Commission's permission to rebuild the lines shortly after the storm, this was not granted until two months later, and while they were waiting they were forced to maintain service as well as they could over temporary cables laid on the ground and attached to fence posts and trees and by diverting long-distance calls to other lines.

Alleged Improper Practices in Purchasing Coal

Col. Chantland implies in the following testimony that the relationship of holding companies with their coal-producing subsidiaries was unethical.

"Senator Couzens: Did you find that the holding companies were purchasing coal for their respective operating companies?"

"Col. Chantland: We had an investigation of that sort with regard to the Insull outfit, where it was hooked up with the Peabody Coal Company; yes * * *. The Insulls were large holders in Peabody coal. That is the biggest one in Illinois."

"Senator Couzens: So they got a profit two ways?"

it one place or the other."

"Col. Chantland: Yes. They would get

"Senator Couzens: They got it both ways, did they not?"

"Col. Chantland: It would all depend how they marked it, up or down." (pp. 116-117.)

The following testimony from th-

(Continued on page 174)

THE T.V.A. AS A PYRAMIDED HOLDING COMPANY

The Government of the United States

The Tennessee Valley Authority

(A permanent independent agency, created by Public Act 17, May 18, 1933)

(Empowered to issue bonds: $50,000,000
Allotment by N.I.R.A. 1933 $50,000,000
Emergency Appropriation, 1934 $25,000,000)

Tennessee Valley Associated Cooperatives*

Shady Grove Cannery
Newport Flour Mill
Farmers Federated Knitting Project
A seed potato cooperative
Murphy Cannery Association
Haywood County Cannery Association
Farmers Confederated Cannery
Norris Town Stores Consumers Corp.
A dairy cooperative

Electric Home & Farm Authority

(Incorporated under the laws of Delaware, January 17, 1934)

(Allotment by N.I.R.A. 1933: $1,000,000
Loaned by R.F.C. 1934: $10,000,000)

(*Incorporated under the laws of Tennessee, January 23, 1934.)
(Allotment by F.E.R.A. 1934: $300,000.)

Domestic Electricity in Ontario

A Further Analysis of the Domestic Appliance Load in the Municipalities Supplied by the Hydro-Electric Power Commission of Ontario

By William M. Carpenter
Economist, Edison Electric Institute

IN the January BULLETIN, we suggested that the high average use of domestic electricity in Ontario was primarily based upon the relative price of competitive fuels and that what is largely an economic question has, for lack of correct analysis, been assumed to be one of the relative merits of private versus Government ownership.

Since the publication of these views, much interesting information has been made available by Mr. G. J. Mickler, of the Sales Department of the Hydro-Electric Power Commission of Ontario*. In his analysis of the use of domestic electricity among the "Hydro" municipalities, he has shown, for the first time, the division of consumption between the various electric appliances and from this breakdown some very important conclusions may be drawn.

Mr. Mickler's chart, redrawn by the author, is shown as Chart 1, and, for comparison, there has been shown next to it the similar chart for the United States, which appeared with its supporting table in the April issue of the BULLETIN.

The contribution of the electric range and water heater to the development of the Ontario total is immediately apparent while, on the other hand, the relatively small part played by the refrigerator and the radio is equally striking.

In order to emphasize the effect of cooking and heating devices in building up an average customer use in Ontario to well over 1600 kwhr per year, Chart 3 has been prepared from the data underlying the two foregoing diagrams. This sets out, on a customer basis, the electricity used by heating and cooking devices (including grills, toasters, percolators, space heaters, etc.) which might be considered as being on a competitive basis with other fuels. If I have measured Mr. Mickler's chart correctly, the average contribution of these devices is now of the order of 1050 kwhr per year, or two thirds of the total customer use. On the other hand, the curve for the United States shows a modest 126 kwhr per customer, or one fifth of the 631 kwhr which last year represented the average obtained by dividing the total sales of domestic electric service by the total number of customers.

This once more emphasizes the manifest advantages of the low cost water powers of Niagara and Quebec, in a region which has no coal deposits of its own and where supplies of natural gas are meager except in a few restricted localities.

Excluding cooking and heating devices, the average use of electricity per domestic customer is only slightly greater in Ontario than it is in the United States. This is graphically shown on Chart 4. In 1933, Mr Mickler's chart indicates an average use, per customer, of the order of 575 kwhr per year. In the United States, the corresponding figure was 478 kwhr. Although actual total sales are not yet available, the "Hydro" chart leads us to expect an average of about 560 kwhr for 1934, against an actual figure of 505 kwhr for the United States.

Those who maintain that reduced rates are accompanied by proportionately greater consumption might well be asked why, in spite of the manifestly lower rates of the Ontario "Hydro" cities, the average use per customer in the ordinary household pursuits is only 10 per cent more than in this country.

The same question might well be asked in regard to various municipal plants in this country whose comparatively low

* "Prospects for Selling 100,000 Horsepower to Domestic Users in the Next Three Years"; presented to the Association of Municipal Electric Utilities, Toronto, Jan. 29, 1935; published in the February number of the "Bulletin" of the H.E.P.C.

Chart 1—Total Sales of Domestic Electricity in the "Hydro" Municipalities (as estimated by G. J. Mickler in the "Bulletin" of the H. E. P. C., February, 1935)

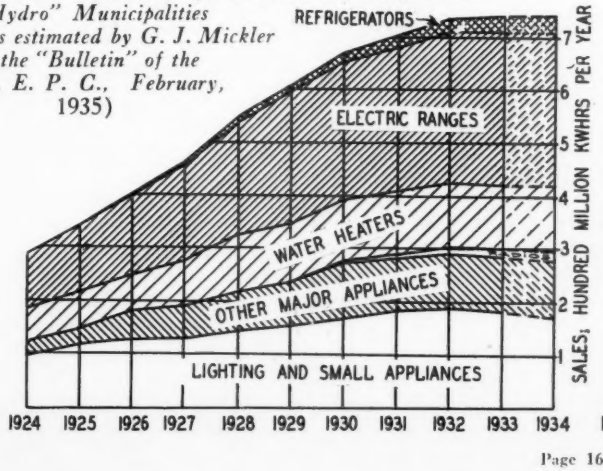
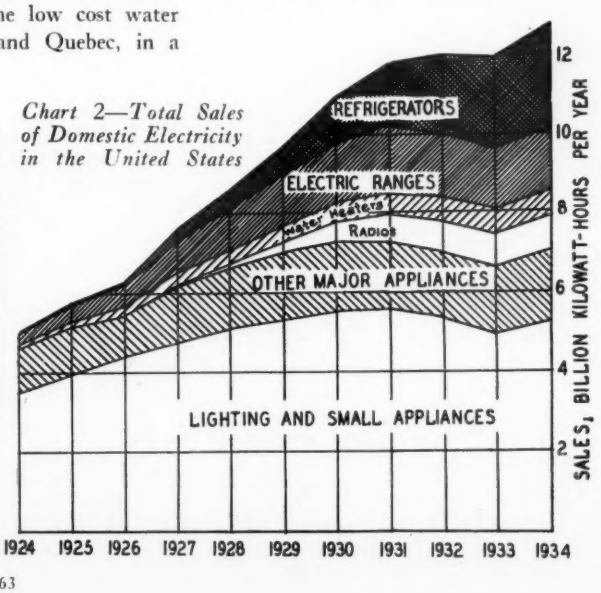

REFRIGERATORS
ELECTRIC RANGES
WATER HEATERS
OTHER MAJOR APPLIANCES
LIGHTING AND SMALL APPLIANCES
SALES, HUNDRED MILLION KWHRS PER YEAR
1 2 3 4 5 6 7
1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934

Chart 2—Total Sales of Domestic Electricity in the United States



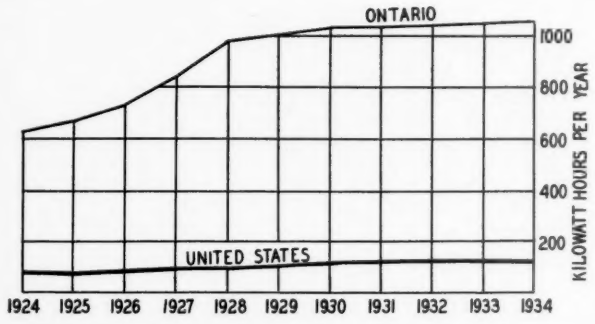


Chart 3—Average use of domestic electricity per customer for heating and cooking in Ontario and in the United States

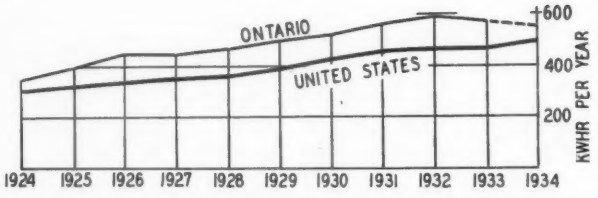


Chart 4—Average use of domestic electricity per customer for all purposes except heating and cooking in Ontario and in United States (1934 *as estimated by G. J. Mickler; actual totals not yet available*)

rates have not in any way been followed by high consumption of electricity. In Los Angeles, for instance, where cheap oil and gas are abundant, the domestic customers of the municipal power and light bureau used only 580 kwhr in 1933. Jamestown, N. Y., served by a municipal plant with outstanding low rates but in a territory well supplied with natural gas, had, in 1933, an average use of 583 kwhr per year.

In his speech, Mr. Mickler points out that "it is said that over 75 per cent of the families of urban communities in Ontario come within the income group of $1,500 or less per annum, the average income of this group being not over $1,100 even in prosperous times." It would thus appear that, outside of the competitive fuel field, it is community purchasing power that ultimately governs electric consumption and that beyond a certain point, lowered rates often bring only lowered revenues.

Falls of Persons

By Roy M. Godwin

Director of Safety, Philadelphia Electric Company

Fifth of a series of articles sponsored by the Accident Prevention Committee, Edison Electric Institute, W. A. Buchanan, chairman

THIS type of accident is probably the *number one public enemy* in the world of accidental injury. It ranks near the top of the list as the immediate cause of fatal injuries and long periods of time lost from work.

The reasons for the fact that *falls* hold such an important place in accident experience and in accident prevention are as follows:

1. Accidental Falls are not confined to one industry or group of industries but are experienced in all industries.
2. Occurrences of Accidental Falls are even more prevalent in non-industrial than in industrial experience. The hazard is present at home, on the streets and highways, and in all kinds of recreational activities.
3. Falls respect no classes or ages of society. Rich or poor, child or adult, worker or idler, traveler or stay-at-home—all are exposed to the danger of falling.

The most interesting as well as most valuable information about any accident is *how* it happened and *why* it happened. These two items of information are fundamental in the prevention of accidents.

The *how* of an accident refers to the conditions and circumstances immediately surrounding the occurrence of the accident. The *why*, more obscure and more difficult to find, refers to the true or fundamental cause of the accident.

Let us examine *falls* from the *how* viewpoint. This avenue of thought leads us to the consideration of types of accidents. Falls may happen in many ways—among which are:

1. Slipping on icy, snowy, greasy, oily, wet or loose surfaces.
2. Tripping over objects on the level.
3. Falls from standard climbing devices such as portable ladders, fixed ladders, stairs, poles, towers and trees.
4. Falls from improper climbing devices such as chairs, stools, desks, boxes and fences.
5. Falls from elevations such as platforms, scaffolds, roofs, boilers, pipe lines, machinery and vehicles.
6. Falls into depressions such as pits, holes, trenches and manholes.
7. Falls with collapsing structures such as floors, roofs, stairs and ladders.

It is a comparatively simple task to assemble the data from a group of accident reports in order to learn where, when, how and to whom the accidents are happening.

From this basis mechanical guards and safe practices, or rules of conduct, may be evolved to reduce or eliminate the chance of these accidents happening again.

Now that we have considered the *how* viewpoint, what about the *why* viewpoint?

The search for the true reasons *why* accidents happen is far more difficult, because these reasons are almost always linked with the failure of some human to think clearly and plan carefully for his safety or the safety of others.

(Continued on page 176)

Direct-Current Transmission

Electrical Equipment Committee

AT the mid-winter convention of the A.I.E.E. an engineering paper describing the theory of constant current d-c transmission as developed by the General Electric Company was presented. This paper gave the fundamental basis of this development and described the circuits used in converting the alternating current to direct current for transmission and the direct current back to alternating current for distribution. Unfortunately the newspaper accounts of this meeting played up this paper as reporting developments which would immediately open the field for the transmission of large blocks of electrical energy over great distances.

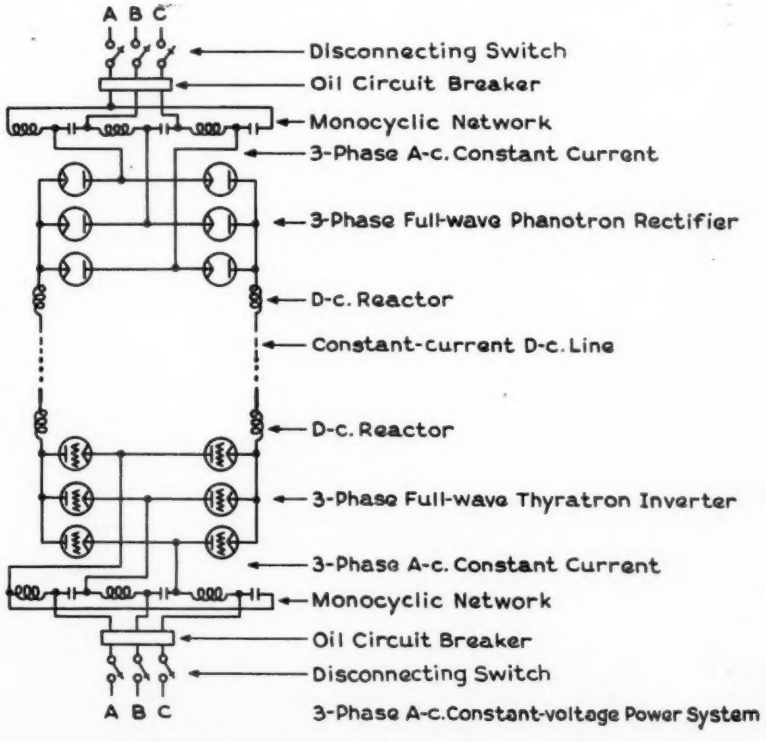
The transmission of electrical energy by direct current was developed and used a number of years ago. The Thury system was highly developed and at least one circuit is probably still in use in Europe. This system employed direct current machines in series for the generation and use of the high voltage constant current.

The constant current d-c transmission described at the mid-winter convention employs Phanatron and Thyratron tubes for converting the alternating current to direct current for transmission and then for converting the direct current to alternating current for distribution. The simplified circuit is shown in the diagram and consists of first an alternating current supply at constant potential, a monocyclic network for changing constant potential a-c to constant current a-c, a three-phase full wave Phanatron rectifier for converting the constant alternating current to constant direct current for transmission, a three-phase full wave Thyratron inverter, and a monocyclic network for converting the constant current a-c to constant potential a-c for distribution.

This development started, as all similar developments, in a laboratory, and the fundamentals of the scheme worked out on a small scale. Following the completion of the laboratory development a model suitable for transmitting 150 kilowatts at 15,000 volts 10 amperes was completed and used for further development. Last December a number of central station engineers were invited by the General Electric Company to witness a demonstration at Schenectady of one-half of a constant current transmission system designed for transmitting 6000 kilowatts with 15,000 volts to ground or 30,000 volts between the two wires and 200 amperes. Due to limitation of the tubes this is the largest set which appears feasible to build at this time. Additional development of tubes and apparatus will be necessary before larger currents or higher voltages can be handled.

The use of this system of transmission would have certain advantages in the elimination of charging current and a simplification in certain operating and switching conditions. At the present time little is known of the effects of the high voltage direct current on the insulators of open wire lines, or on the insulation of underground cables. However, it is anticipated that these circuits may be worked at higher voltages with direct current than with alternating current. Such increase of voltage would result in certain economy in the transmission line itself. The magnitude of this saving would, of course, depend upon the amount of power transmitted, the length of circuit and whether the circuit was overhead or underground. Such savings would require balancing against the increased initial cost and operating costs of the terminal equipment.

This interesting development, which has now passed from the laboratory work-bench to a point where it is suitable for an experimental field trial, will be followed with interest by utility engineers. A field trial of new apparatus always brings out unforeseen troubles and difficulties. For this reason it is necessary to make the first applications with equipment of limited size and in a service where outages will not be serious, either for short durations or for long intervals while the equipment is undergoing major changes. The most promising situations for such trial application appear to be in transmission networks where certain tie lines result in difficult load balancing conditions or where systems of different frequencies are to be interconnected. However, much development work remains to be done before it is suitable for transmitting sufficiently large blocks of power to become an important means of transmission.



Principal connections of d-c. transmission system

Sir Edward Sharpey-Schafer

An Appreciation

RECENTLY there appeared in the newspapers the following:

Sharpey-Schafer, Sir Edward—At Park End, North Berwick, Scotland, on Friday, 29th March, 1935, Sir Edward Sharpey-Schafer, F.R.S., Emeritus Professor of Physiology in the University of Edinburgh, Scotland, in his 85th year.

To the Medical Profession this meant the closing of a life rich in years and honors and of outstanding value as a leader of independent advanced research, as an inspired teacher and as a skilled organizing executive.

The Electrical Industry has, however, taken the name of Schafer to its own. To the lineman, operator, mechanic or manager it means the saving of life by the Prone Pressure Method of Artificial Respiration based upon the work of Sir Edward Sharpey-Schafer.

Sir Edward Sharpey-Schafer

Sir Edward was born June 2, 1850, in Hornsey, London, England. He received his undergraduate medical education in University College, London, coming under the influence of the eminent Physiologist William Sharpey and was the first Sharpey scholar in 1873. In 1874, he was appointed Assistant Professor in Physiology in University College and in 1883 was appointed Jodrell Professor which chair had been held by William Sharpey. Sir Edward filled this post until he was in 1899 elected to the chair of Physiology in the University of Edinburgh, Scotland.

Honors came early to this brilliant mind, being elected a Fellow of the Royal Society at 28. To read a list of the Universities that have honored themselves by honoring Schafer is to almost read a list of those most prominent. Medals and special prizes were presented as the years went on, recognizing his outstanding worth.

His early researches were brought together in his book, The Endocrine Organs, opening up a new world for the scientist with the resulting untold value to mankind. Many papers and monographs recorded the result of his studies and investigations; these defining new fields of study and shedding light from his keen mind on the dark places of his chosen work.

In the fading years of this century, attention was being drawn to the confusion in methods of artificial respiration. This matter was considered by the Royal Medical and Chirurgical Society and what more natural than to approach this leading Physiologist to be chairman of the Committee to investigate and to report on the whole matter of artificial respiration. Bringing to this practical problem the mature thought and trained scientific knowledge of the Physiologist resulted in reports of 1901 and 1903 that presented the classic Prone Pressure Method of Artificial Respiration. In 1909, Sir Edward discussed and explained the method in the Harvey Lecture in Philadelphia.

The method is so simple that a child can be taught. Many have thought that surely this simple method without apparatus could not save life. They, however, did not take into consideration that most natural, effective methods are simple if they are developed and defined by a methodical, keen mind with knowledge of all of the factors entering into the problem.

The method was originally designed for saving life from drowning. Electrical shock also caused breathing to stop and the method has been slightly modified in detail to adapt it to the field requirements of the Electrical Industry. The employees have been trained in its application and are, by practice, required to maintain efficiency, to be ready for an emergency. The result has meant many lives being saved and many families spared unnecessary sorrow.

To Sir Edward Sharpey-Schafer the whole industry, from groundman to executive, owes a deep debt of gratitude for his clear exposition of the simple but so effective method. This great life, starting in England and being brought to maturity there, came to possibly its most brilliant flower in Scotland and has shed its fruits to all the world.—WILLS MACLACHLAN.

A resolution of the EDISON ELECTRIC INSTITUTE expressing the deep gratitude of the employees of the electrical power industry on this continent for the resuscitation method developed by Sir Edward has been dispatched to Lady Sharpey-Schafer, at North Berwick, Scotland, by President McCarter of the INSTITUTE.

Financing the Customer

(Continued from page 140)

It should preferably include a so-called wholesale feature which will permit the dealer to finance his display and peak season stock requirements.

4. The plan should have low sales resistance as far as the purchaser is concerned. This means low rates and favorable terms.

5. It must be flexible. The time payment plan is a sales tool, and selling must adjust itself promptly to changing conditions in the community if it is to be successful. Flexibility in a plan will permit it to adjust for calamities which may overtake individual purchasers and, in this way, permit them to adjust their obligation to their changed situation. It will also permit the retailer to offer such programs as a winter refrigerator sales plan under which payments are postponed until spring or meet other similar seasonal problems.

6. The plan must be prompt and efficient in its operation. Prompt service on credits is absolutely vital to any plan and prompt and effective follow-up of delinquents will go a long way toward reducing losses and thereby justifying the lower rates of our ideal plan.

7. It must protect public relations. This means the relations between the utility company and the public it serves and the relationship between retailers and their customers. The latter is, of course, indispensable to a merchant and I certainly need not emphasize to a utility group the importance of its relationship with the public it serves. Collecting overdue accounts; granting credit to some and withholding it from others, or repossessing a piece of merchandise, are not popular forms of activity and, in my opinion, the utilities public relations will be better off if it lets the finance company do this part of the job. Particularly is this the case, in connection with transactions between some dealer and one of the utility customers which the utility does not enter until some unpleasantness has arisen.

In conclusion, I believe that the past year or so has seen more rapid strides in solving this major industry problem of financing the consumer than any period which I can recall since my association with public utility work, and I firmly believe that with the increased attention now being given this problem by utility companies, manufacturers and finance companies that we will soon see a more or less complete solution to the problem.

Accident Prevention Committee Meeting

W. A. Buchanan, *Chairman*

THE second meeting of the Accident Prevention Committee was held at the William Penn Hotel, Pittsburgh, April 16, during a group meeting of five Technical Committees. The total attendance was twenty-two including eight of the twelve committee members present.

Progress reports and discussions were held on the following subjects:

1. Cooperation with Other Safety Groups—W. R. Smith.
2. Accident Statistics—C. R. Beardsley.
3. Grounding Principles and Practices—I. W. Gross.
4. Interlocking and Hold-off Procedure—I. W. Gross.
5. Public Safety—H. J. Burton.
6. Employee Health—Wills Maclachlan.
7. Low Voltage Hazards—E. W. Gorry.
8. Office Hazards—E. R. Kropp.
9. Traffic Hazards—C. N. Rakestraw.

The report and discussion on Cooperation with Other Safety Groups brought out that negotiations have been started whereby the safety problems in which this industry is interested and which also concern other organizations, will be dealt with cooperatively. Different safety problems will involve different organizations, so that this cooperative work will bring together different groups from time to time. The Accident Prevention Committee and some of the sections of the National Safety Council will have problems in common and it was felt that through cooperation, progress will be made that neither organization could accomplish alone.

Mr. Buchanan brought to the Committee's attention plans for publishing a series of short articles on safety subjects in the E. E. I. BULLETIN. These started with the December, 1934 issue and have continued up to and including the May issue. Articles are in preparation for the June, July, August and September issues. Consideration is being given to publishing all of these articles in one volume when the series has been concluded.

With regard to Accident Statistics, work is under way by a sectional committee of the American Standards Association on Standardization of Methods of Recording and Compiling Accident Statistics. Numerous organizations and groups including the E. E. I. are represented on this Sectional Committee and hence many viewpoints are presented which makes it difficult to standardize this procedure. The proposed code that has been prepared was discussed and it was decided that it would be difficult for our industry to apply this code because of its complicated nature and the detail involved in collecting and compiling accident statistics under it.

Attention was called to the statistics that are collected through the Statistical Subcommittee of the Edison Electric Institute and reference was made to a graph published in the July, 1934 E. E. I. BULLETIN which shows the trends in the accident records of electric light and power companies. In general this graph showed downward trends over a period of several years and was better than the trend toward the 1936 objectives established in 1930. Considerable attention is being given to the collection of cost data for accidents but nothing beyond general data has been assembled.

An effort has been undertaken to obtain cause and locus data which when analyzed, will show the various departments of the industry their respective accident and safety records. This together with corresponding accident cost data should emphasize what accidents mean to the various departments of an operating company. This involves a great deal of painstaking efforts but will be extremely valuable when it becomes available. In the discussion of accident statistics, it was pointed out that present day figures are approximately one-twenty-fifth of what they were in 1910, which was some two or three years prior to the formation of the Accident Prevention Committee of the former N. E. L. A.

A tentative report on Interlocking and Hold-off was prepared several years ago but due to the dissolution of the N. E. L. A. this has been inactive until recently. This tentative report was found to be useful by companies who, in preparing to offer comments and criticisms found defects in their procedure. No national standards will be attempted along this line, but it was believed that there are certain fundamental principles which can be stated and used as a basis for a company wishing to form its own procedure on interlocking and hold-off methods. Work on this project will continue and it is expected that some form of a final report can be made at the next meeting.

Several phases of public safety were reported and discussed. The kite problem is largely an educational matter and member companies are endeavoring through various means to bring this situation to the attention of children and parents to emphasize the caution not to fly kites in the vicinity of power lines. This is not only a question of safety to those flying kites but as was mentioned by several, kites and strings when lodged on power wires become a source of service interruptions. Other phases of Public Safety to receive attention in committee discussion were: Visitors on the premises of hydro electric plants; the operation of cranes and hoists in the vicinity of power lines; and the moving of houses and buildings under and along overhead power lines. With reference to the last two items, cooperation with those concerned was stressed as being necessary to avoid the occasional serious accidents.

Employee health is a new activity undertaken by the Accident Prevention Committee. A small group of power company doctors and physicians has been selected to study this problem. It was pointed out that the cost to companies of sickness of their employees is greatly in excess of the cost of accidents and it is time for the industry to give more attention to employees' health. Those interested in this subject were referred to the three following books:

1. Your Health and Your Earning Power.
2. Industrial Health Service.
3. Medical Supervision and Service.

A brief report was given on the subject of low voltage hazards. Incomplete data for the last two years were presented with the explanation that when this is finished a more complete report would be rendered. The industry is still interested in this subject and will continue to study it closely. It was pointed out that the greatest success in this phase of safety work can be accomplished through education of the public in how to use their appliances and by calling attention to the conditions under which they should exercise care in handling electric cords and fixtures.

It was reported that to date twenty-three Edison Electric Institute medals have been awarded for successful resuscitation from electric shock.

Another new subject which this committee will study is Office Hazards. It

was felt that until there is more definite information relating to our industry, the various publications that are available through the National Safety Council be utilized by member companies in attempting to meet this problem.

Traffic Hazards was called to the attention of the Committee and the sharp increase in fatalities in 1934 over 1933 figures was discussed. A great deal of attention has been given to this problem by electric light and power companies, but it has been found that certain rules used in traffic contests are not applicable because some cases that must be included in power company statistics are omitted under the contest procedure. Consideration is being given to an attempt to reconcile these points of view in collecting motor vehicle statistic records.

Mr. Buchanan stated that he has on hand approximately 2500 copies of the book "Health and Earning Power" and 2700 copies of the publication "Safety Methods in Power System Construction." These will be sent to those interested at a nominal charge.

An interesting feature of this meeting was a luncheon which the chairman had planned and which was attended by most of the committee members present. Several officials of local power companies, chairmen of other technical committees and guests were also present.

In all probability the next meeting of this committee will not be held until next fall.

Electrical Equipment Committee Meeting

W. F. Sims, *Chairman*

THE spring meeting of the Electrical Equipment Committee was held at the William Penn Hotel, Pittsburgh, Pa., April 16th-17th. The meeting was well attended by members of the committee, members of other committees meeting during the same week, and guests from the local utilities.

The morning session of the first day was a closed meeting where the report on Apparatus Trouble was reviewed and where various items of committee business were discussed and the procedure to be followed determined. The meetings of the first afternoon and the morning and afternoon of the second day were open sessions where, in addition to the committee members, engineers of the local utilities and invited engineers from electrical manufacturers were present.

A preliminary summary of the replies received regarding inspection and maintenance practices was presented and reviewed. This summary shows that during the past five years the inspection practice has been substantially changed in order to obtain economies. Generally it has been found that satisfactory operation could be obtained with the curtailed maintenance schedule.

Papers giving the experience of various companies in connection with the failure of transformer and oil circuit breaker bushings were presented to the committee. The bushings on oil circuit breakers appear to be more subject to failure than the transformer bushings. The primary cause of bushing failure is the entrance of moisture into the bushing due primarily to the tendency of the bushing to breathe. The more modern bushing designs appear to have overcome largely these difficulties.

A report discussing the engineering features in the application of capacitors for improvement of power factor was reviewed. The use of capacitors for power factor correction has been quite extensive, and in a few cases serious trouble has been experienced. Under certain load conditions the capacitors cause sufficient rise in voltage to seriously interfere with their proper operating conditions. In other situations the capacitors form a part of a resonant circuit for some harmonic, with a consequent overheating of apparatus. The report discusses the factors which should be considered in each application, and suggests procedure to be followed when capacitors are being considered.

The problem of obtaining standardization of the electrical features of ranges has been under consideration for some time by a joint committee of the industry. A report giving the result of the survey of voltage requirements for ranges was reviewed by the committee. It was shown that a number of companies find it necessary to have ranges which will operate both from a three-wire single phase secondary and from a three-phase four-wire network. This report was accepted as a satisfactory basis for discussing, in the joint committee with N.E.M.A., the question of voltage rating of elements, load balancing, and the desirability of universal types of ranges.

The Meter and Service Subcommittee reported that it had developed tentative standards for a service entrance device which appeared to meet the major requirements for such devices. These standards are being discussed with N.E.M.A., and it is expected that there will shortly be available a satisfactory simplified service entrance device at a cost below the present cost of such equipment.

Progress is being made in the development of a cable which will be suitable for a service drop and entrance cable, and for use from the service entrance switch to major appliances. It is expected that the use of a single type of cable will result in substantial decrease in the cost of supplying service to major appliances.

Mr. F. S. Brown presented an illustrated talk describing the relaying system designed for and installed at the Colfax station of the Duquesne Light Company. This relaying system is so arranged as to permit the use of existing circuit breakers which otherwise would be inadequate. The arrangement has resulted in modernization of the station at a substantially smaller investment than would have been required had these breakers been replaced with breakers of higher interrupting capacity.

Mr. Carty described the Buzzard Point plant of the Potomac Edison Company which recently has been built by Stone & Webster. The plant has a number of unique features required by its location close to the center of the capitol city.

Mr. Coleman of the Grinnell Company gave an illustrated talk describing the Mulsifyre system of oil fire fighting which has been developed by his company in cooperation with Mather & Platt, Ltd., of Manchester, England.

Mr. Eberhardt of Walter Kidde & Company demonstrated the pressure type protector which has been designed for the protection of large transformers. This equipment has been used extensively in Germany, and there are a few installations in this country at the present time.

Mr. Cornell of the Delta Star Company gave an illustrated talk describing the new 287-kv, three-pole, motor-mounted, disconnect switches which had been built by his company for the Boulder Dam lines.

Transmission and Distribution Committee

Mark Eldredge, *Chairman*

THE seventh meeting of the Transmission and Distribution Committee was held at the William Penn Hotel in Pittsburgh on April 18 and 19, 1935.

The forenoon session on April 18 and the latter part of the forenoon session on the 19th were closed sessions at which various matters of Committee business were discussed and plans for the future work of the Committee were given consideration. A dinner meeting of the group sponsors was held on the evening of April 18.

There was an inspection trip on the evening of the 18th to the plant of the Copperweld Steel Company at Glassport, Pa. Arrangements had been made for the plant to be in operation at the time this inspection was made, and several members of the Committee and guests availed themselves of the opportunity to make this interesting trip.

The sessions held during the afternoon of the 18th and most of the forenoon of the 19th were open meetings in charge of the various group chairmen. An interesting paper on Development in Transmission System Operation was presented by Mr. S. M. Zubair for Mr. E. P. Peck of the Buffalo, Niagara and Eastern Power Corp. under the sponsorship of the Transmission Group.

Recent developments in underground cable were discussed by Mr. D. W. Roper, who also held a group meeting of the Standards and Specifications Group of which he is sponsor. In this discussion, considerable time was given to a discussion of the preparation on specifications for Hard Drawn Copper Transmission Cable by Mr. G. E. Dean who represents the Light and Power Group on a committee of the American Society for Testing Materials. This is a project which has been under consideration for several years and at present consists of a revision of A.S.T.M. Tentative Standard B87-32T, Hard Drawn Copper Transmission Cable.

Progress reports were presented on insulator standards by Mr. W. H. Knutz, timber products specifications by Mr. P. B. Stewart, and pole line hardware standards by Mr. H. P. Seelye.

The forenoon session on April 19 was given over to a discussion of Overhead Distribution Problems. A report was presented on Service Entrance Cables for Mr A. E. Silver, and Mr J. H. Foote presented a report on Utilization Equipment Voltage Requirements. Papers were presented at this meeting on Loading of Distribution Transformers by Messrs. Merrill DeMerit and M. O. Wessenauer and on Distribution Transformer Design Practice by Messrs. J. B. Hodtum and W. A. Sumner. Discussions were presented on Farm Line Transformers prepared by Mr. A. E. Silver and on Rural Line Economics by Mr. E. V. Sayles.

The lack of time did not permit extended discussions on papers and discussions prepared for this meeting. It is planned that at the next meeting of the Committee discussion will be continued of some of the subjects presented at this meeting.

On the afternoon of April 19, a luncheon was given at the Edgewood Country Club, where the Committee members were guests of the Westinghouse Electric and Manufacturing Co. Almost the entire afternoon was given over to a technical discussion of the new surge proof transformer, and this was followed by a visit to the plant of the Westinghouse Company at East Pittsburgh, where a demonstration of this transformer was given. The visitors were also taken through the high voltage laboratories where a demonstration of artificial lightning was given.

The attendance at this meeting was approximately 75, twenty-six of these being members of the Committee and 20 others were power company representatives.

It is planned to hold the next meeting of the Committee at Chicago in October.

Prime Movers Committee Meeting

Alfred Iddles, *Chairman*

THE spring meeting of the Prime Movers Committee was held April 15-16 in Pittsburgh, Pa. It was well attended by members and a number of guests.

The primary business which engaged the Committee was the review of the reports of the Boiler, Turbine and the Combustion Subcommittees. These reports were generally approved and referred to the Editing Subcommittee for editing and printing.

A group of eight specifications which had been received from the A.S.T.M. on the subject of refractories were presented for the committee's information.

A statement prepared at the request of the Committee by the Hartford Steam Boiler Inspection and Insurance Company on the subject of approval of welding shops was read and discussed. In particular several members stressed the need of inspecting welded work in the shop during fabrication.

The use on Detroit Edison Company welding work of a welding inspection tool developed by the Navy and called the "Arcronograph," was reported by Mr. Thompson. This device has been described in *Engineer* and a recent issue of the *Journal of the American Society of Naval Engineers.*

It was reported that a hearing is to be held by the A.S.M.E. on the model smoke ordinance prepared by the Pure Air Committee and distributed in draft form with the minutes of the Prime Movers Committee meeting for January 14 and 15.

Mr. Christie called attention to a paper describing to the Institute of Fuel a non-effluent water process for the removal of smoke and acid constituents from flue gases. This paper has been reviewed in the April issue of *Combustion.*

There was discussion of the use of sulphite in boiler feed water for inhibiting carry-over. Mr. Grunert reported experience with its use to the effect of requiring 75 lb. per day initially to show a residual as compared to a 10 to 15 lb. computed requirement; then the requirement dropped to 20 lb. per day. The reduced requirement has the explanation that the piping system may have held some oxygen retaining compounds which had first to give up their oxygen. Mr. Penniman reported reduction of carry-over with a shift from phosphate to sulphite treatment but cited the formation of sulphate scale in superheater tubes. He stated, however, that this scale can be washed out.

Experiments involving the pickling of economizer tubes to remove scale and corrosion were reported by Mr. Caldwell in which a 15 per cent hydrochloric acid and 1 per cent Barrett's inhibitor solution was circulated within the econo-

mizer for about 20 hours. The use of some coal tar derivative as an inhibitor in a similar solution was referred to while Mr. Penniman cited the use of a 5 per cent lactic acid solution for removing sulphate and carbonate deposits from boiler tubes.

Discussion of superimposing a high pressure plant on top of an old low pressure plant stressed the effect of local conditions upon the problem and pointed to the improbability of justifying such a plant in advance of the need for added capacity on a system.

A new type of stoker known as the "Firite" was discussed. This device consists of a star feeder arrangement for projecting the coal into the furnace, and a grate similar to a hand fired grate. A number of small industrial installations are said to exist in the central west and combustion rates of 55 to 60 lb. per sq. ft. of grate area per hour have been obtained. Several members had seen the stoker in operation.

Mr. Christie referred to a study he had made some years ago of providing power plants with hot water storage provisions so that hot feed water could be accumulated during off-peak periods, then used during peak in the interest of shutting off the extraction heaters to increase the turbine capacity. He told of such an installation in Africa and also stated that the Ruths people were cooperating with Mertz and McClellan on a layout for a large British station using this feature.

Mr. White reported progress of the A.S.T.M. Subcommittee working on specifications for carbon and alloy steels at temperatures from 750 to 1100° F. and stated that the intended program is to make further investigations covering alloy steels before the specifications are released. The Committee requested him to ask the A.S.T.M. Subcommittee to publish the data now available covering carbon steels at elevated temperatures without waiting for similar data on alloy steels to be gathered.

It was stated that the report of the Oil and Gas Engine Subcommittee would be completed in May.

The Committee adjourned to permit interested members to attend a showing of a motion picture prepared by Grinnell Company of Providence, R. I., on the subject of extinguishing oil fires by the use of Mulsifyre nozzles which throw solid cones of finely divided water, which, on striking the burning oil, create an oil-water emulsion which extinguishes the fire almost instantly.

RECENT PUBLICATIONS

A-C NETWORK OPERATION—1932-1933

E.E.I. Pub. B-12. A report of the Transmission and Distribution Committee, Edison Electric Institute, 20 pages. Price 40c. to members and their employees; $1.00 to non-members in the U. S. A.; $1.10 to foreign countries.

THIS, the second report on low voltage alternating current networks, covers the two years—1932 and 1933—and continues the record which was started in the report for the year 1931.

Sixty companies operating networks in 76 cities have submitted data pertinent to the design and operating characteristics of networks.

Altogether, 92 cities in the United States and Canada have been listed in which networks are either in operation or are being developed. In addition to these, several networks are in operation in Mexico, South America, and Japan.

CABLE OPERATION—1933

E.E.I. Pub. B-11. A report of the Transmission and Distribution Committee, Edison Electric Institute, 33 pages. Price 60c. to members and their employees; $1.50 to non-members in the U. S. A.; $1.60 to foreign countries.

THE amounts of high voltage underground equipment covered in this report were approximately the same as reported at the end of 1932. The 1933 total rates of cable, joint, and pothead failures were lower than those of the preceding year. The cable failure rate dropped 3 per cent, while the rates for joints and potheads decreased 11 and 8 per cent respectively.

Contrary to the experience of previous years, the inherent failure rate per paper insulated cables having oil reservoirs connected to their joints, was 32 per cent lower than that for other paper insulated cables. Joints with oil reservoir also had a better inherent failure rate, which was 49 per cent lower than the 1932 rate, and 30 per cent lower than the 1933 rate for all other joints.

Removals of high voltage cables in anticipation of failure because of mechanical damages increased from 55 per cent in 1932 to 62 per cent in 1933. Wear at the duct mouth was the predominant cause of removal and accounted for 32 per cent of all anticipated failures.

Testing of the lines after they had gone into service accounted for 23 per cent of the cable failures.

Improvement in the operation of low voltage underground equipment was evidenced by the 19 per cent decrease in cable failure rate as compared with the 1932 rate. Of the low voltage cable failures where causes were assigned, inherent failures totaled 15 per cent as against 25 per cent for high voltage cable failures. The lowest rate of cable failures was on a-c secondary distribution other than network. The highest rate was on street lighting cable.

The 1933 rate of sheath repairs on high voltage cable in manholes was 3 per cent higher than the rate during the preceding year. For the past three years the frequency of troubles due to bending was virtually constant, while the percentage of repairs to cables occasioned by wear has been decreasing steadily.

STEAM AND ELECTRICAL REQUIREMENTS OF OFFICE BUILDINGS

E.E.I. Pub C-2. A report of the Sales Committee, Edison Electric Institute, 14 pages. Price 30c. to members and their employees; 75c. to non-members in the U. S. A.; 85c. to foreign countries.

THE purpose of this report is to provide a group of basic factors that may be used to determine the approximate steam and electrical requirements of office buildings.

The report gives tables of unit consumption derived from tests and operating data on a large number of office buildings in Philadelphia, New York City, St. Louis, Chicago, Boston, Michigan and Georgia. Included also are curves which have been developed from these data showing the relation between outdoor temperature and building heating; between outdoor temperature and exhaust steam wasted by an isolated power plant, and between lighting consumption and hours of sunshine per month.

Supplementing these tables and curves is an example of the method followed by one operating company in developing the comparative heat, light and power costs of a building with an isolated power plant and the same building with purchased electric service.

A list of Publications for sale by the Institute will be sent upon request to

Edison Electric Institute

420 Lexington Ave., New York, N. Y.

Southeastern Electric Exchange Conference

By J. W. Talley
Executive Secretary

J. G. Holtzclaw

THE second annual conference of the Southeastern Electric Exchange held at Augusta, Ga., April 18 and 19, with an attendance of 160, was one of the most successful meetings that the electric light and power industry in the Southeast has ever held. Practically all of the companies in the territory served by the Exchange were well represented with many guests from other sections of the country. The papers and addresses were all of a practical nature and contained much information and many suggestions of value to the industry.

President J. M. Barry delivered the opening address, reviewing the accomplishments of the Exchange during the past year and stressing the future importance of this organization to the industry in the Southeast. He told of the splendid work which has been accomplished by the several committees of the Sales Section under the chairmanship of E. W. Ashmead of the Tennessee Electric Power Company, and what is expected to be done in the future.

The two-day program included the following papers and addresses: "The Objective Rate Plan"—by Frank A. Newton, chairman rate committee, Commonwealth & Southern Corporation, followed by discussion led by Chas. E. Ide, vice-president and general manager, East Tennessee Light and Power Company.

"Merchandising of Electrical Appliances"—by E. W. Ashmead, manager of sales, the Tennessee Electric Power Company, with discussion led by H. G. Isley, sales manager, Carolina Power and Light Company, and O. M. Jackson, merchandise manager, Georgia Power Company.

"Developing the Lighting Load"—by Roy A. Palmer, illuminating engineer, Southern Public Utilities Company, with discussion led by J. S. Sutherland, manager sales promotion, Alabama Power Company.

"Courage and Commonsense"—by H. P. Liversidge, vice-president and general manager, Philadelphia Electric Company.

"Our Future Prosperity"—by Chas. E. Stephens, vice-president, Westinghouse Electric and Manufacturing Company, followed by general discussion.

"Rural Electrification"—by E. C. Easter, manager rural and towns division, Alabama Power Company, with discussion led by W. I. Whitefield, manager Roanoke Division, Appalachian Electric Power Company.

"Importance of Utility Advertising"—by J. C. Costello, advertising manager, the Tennessee Electric Power Company.

"Power for Industrial Plants"—by Geo. Wrigley, J. E. Sirrine & Company, with discussion led by E. M. Clapp, Georgia Power Company.

"Economies in Distribution"—by C. B. McManus, assistant operating manager, Georgia Power Company, followed by discussion led by D. K. Blake, engineer of distribution systems, General Electric Company.

"Future of Air Conditioning to Utility Companies"—by J. K. Knighten, sales manager air conditioning department, Kelvinator Company.

One of the outstanding features of the meeting was the address by Preston S. Arkwright, president of the Georgia Power Company, before the annual banquet on the evening of April 18.

Ladies attending the conference were very pleasantly entertained by the various ladies' organizations of the City of Augusta.

Much of the credit for the success of the conference was due to the Georgia Power Company, which was exceedingly kind in assisting with arranging conference details.

J. G. Holtzclaw, president of the Virginia Electric and Power Company, Richmond, Va., was elected president of the Exchange for the ensuing year beginning July 1, 1935. Other officers elected were:

First Vice-President—L. V. Sutton, president, Carolina Power and Light Co.

Second Vice-President—W. E. Mitchell, vice-president and general manager, Georgia Power Company.

Third Vice-President—Senator F. W. King, chairman of board, Virginia Public Service Company.

Copies of the various papers will be available from the secretary about May 15.

Oklahoma Utilities Association

W. B. Head, Jr.

WITH an attendance in excess of five hundred, the Convention of the Oklahoma Utilities Association held at Oklahoma City, Okla., March 12 and 13 was one of the most successful yet held by that organization.

Mr W. B. Head, Jr., President, Oklahoma Power and Water Company, Sand Springs, Okla., was elected president for the forthcoming year. Other officers elected were: Vice-President, C. A. Breitung, Ada, Okla., Oklahoma Manager, Southwest Gas Utilities Corporation; Treasurer, W. R. Emerson, Oklahoma City, Vice-President, Oklahoma Gas & Electric Company; Manager, E. F. McKay, Oklahoma City, Okla.

Divisions Officers: Executive Board Members for three years. W. B. Head, Jr., Sand Springs, Okla.; C. A. Breitung, Ada, Okla.; R. J. Daugherty, Bartlesville, Okla., Director, Information Service Department, The Empire Companies; T. H. Steffens, Sand Springs, Okla., President, Sand Springs Railway Company; J. S. Porter, Oklahoma City, Okla., Manager, Westinghouse Electric and Manufacturing Company; C. M. Tuggle, Roosevelt, Owner, Roosevelt Telephone Company.

Division Chairmen: J. A. Whitlow, Tulsa, Okla., Vice-President, Public Service Company of Oklahoma; A. F. Potter, Bartlesville, Okla., Manager, Bartlesville Gas Company; G. B. Dunlap, Chickasha, Okla., Public Relations Director, Southwestern Light and Power Company; H. B. Cobban, Miami, Okla., General Manager, Northwest Oklahoma Railroad Company; A. J. Kerr, Tulsa, Okla., Manager, Mid-West Equitable Meter Company, and G. E.

Devin, Apache, Okla., Owner, Apache Telephone Company.

A 28-page printed report on Mr R. D. Cockrell's seven weeks of investigation of the T V A project is being offered for general distribution, while the supply on hand lasts, at $2 per copy. Copies may be secured from the Oklahoma Utilities Association, 1020 Petroleum Building, Oklahoma City, Okla.

Missouri Association Convention

Charles E. Michel

C. E. MICHEL, Union Electric Light & Power Company, St. Louis, Mo., was elected president of the Missouri Association of Public Utilities at its annual convention held April 24, 25 and 26 at Kansas City, Mo. Fred Karr, retiring president, was elected a member of the Executive Committee.

The association is composed of virtually every privately-owned electric, gas and water company in Missouri. A total of 271 delegates representing the member companies attended the convention.

In addition to Mr Michel the new officers elected for the coming year were: 1st vice-president, C. F. Farley, Kansas City Power & Light Co., Kansas City; 2nd vice-president, Ben C. Adams, Gas Service Co., Kansas City; 3rd vice-president, E. H. Lewis, St. Louis County Gas Co., Webster Groves; treasurer, Hermann Spoehrer, Union Electric Light & Power Co., St. Louis; secretary, N. R. Beagle, Missouri Power & Light Co., Jefferson City; assistant secretary, Jesse Blythe, Jefferson City; managing director, E. A. Beer, Jefferson City.

Executive Committee: T. J. Strickler, Kansas City Gas Co.; D. W. Snyder, Jr., Missouri Power & Light Co., Jefferson City; L. W. Helmreich, Capital City Water Co., Jefferson City; E. P. Gosling, Laclede Gas Light Co., St. Louis; A. E. Bettis, Kansas City Power & Light Co.; Fred Karr, St. Joseph Gas Co.; R. G. Taber, Community Power & Light Co., Cape Girardeau; O. F. Funk, Union Electric Light & Power Co., St. Louis.

A Safety Meeting was a new feature of the convention this year, and a program of active work in accident-prevention was outlined for the coming year. A report will be submitted to the Executive Committee for approval at its meeting in May. If approved by the committee, the state-wide safety program will be carried out by a committee headed by J. M. Strike, St. Joseph, Mo., as chairman.

The winners of prizes in the Employees' Speaking Contest, in which employees of all electric companies in Missouri were eligible, were: Women—first, Miss Cecelia O'Rourke, Union Electric Light & Power Co., St. Louis; second, Miss Alma Swafford, Missouri Power & Light Co., Excelsior Springs. Men—first, A. D. Marston, Kansas City Power & Light Co., Kansas City; second, George Moore, Union Electric Light & Power Co., Webster Groves.

The time and place of holding next year's convention will be chosen by the Executive Committee at its meeting in September.

Our Light Prescribing Program

(Continued from page 154)

edy for this situation by urging the eyesight specialist to make a complete analysis of the patient's eye habits and subsequently to examine the patient's eyes on the basis of his or her eye tasks. This is done easily by a new series of nearpoint test cards which are here introduced. These cards show sections of a bookkeeper's ledger, of a music page, of a stenographer's notebook, and so on—16 of them, which the Institute provides as part of the technique.

The next pages illustrate the light prescribing equipment—the variable illuminator and the meter, which together with the test cards are necessary for completing the light examination routine, and on the following pages, the new routine is explained and illustrated in detail. The doctor is taken step by step through the light prescribing procedure.

On the next pages, a new light prescription form is introduced and explained. The first page permits the doctor to prescribe the necessary amount of light after his test. The reverse side explains how the patient can obtain the necessary light and provides him or her with a self light tester.

On the subsequent pages, the benefits of better light are illustrated and explained graphically under the caption, "Better Light — Better Sight — Better Life." Here the efficiency, comfort, health, success, etc., resulting from better light are illustrated. On the succeeding pages, the patient is told how to get better light through the use of higher wattage lamp bulbs, of more modern lamps, of more outlets, of better painting, etc.

The technique includes a pocket on the inside of the back cover, in which is placed the 16 nearpoint test cards and a large batch of light prescription forms.

Supplementing the production of this technique portfolio, the Institute is to publicize the project extensively to all elements in the optical profession and trade. It will carry the story in a sound film, as has already been explained. It will dramatize the features of the light prescribing book in a series of window displays and, subsequently, in a consumer edition of the light prescribing portfolio. Then, too, for every eyesight specialist not now a member of the Institute who purchases the light prescribing equipment, the Institute provides a year's free membership. In this way, it is hoped to keep the specialist advised on any new developments in regard to the project.

As has been explained several times before in this review, the project is just beginning. It is not an established fact by a long shot. The Institute has endorsed it and is promoting it. This means that 75 per cent of the trade interests are to back the sale of the necessary light prescribing equipment. It means unquestionably that the project will be constructively forwarded, provided, of course, that the utility, electrical and paint interests do not "sink the ship" by short-sighted, overly aggressive, commercial activities, such as in the release of light prescriptions to eyesight examiners and in the overly zealous attempts to sell lamps too near the eyesight examiner's office. The professional character of the project must be kept inviolate if the project is to succeed. The cooperation of all interested groups is earnestly and strongly urged.

INDUSTRIAL HEATING POINTERS

Electric Heat Aids Refrigeration

A RECENT installation of 3-500 watt strip heaters in a commercial refrigerator was made by a slaughter house to increase circulation and better the air condition within the storage room. This storage room is used to remove the animal heat from the meat after it has been butchered. In spite of all the baffles that could be conceived without decreasing the capacity of the storage space, sections of dead air space could not be eliminated. When meat was hung in these areas, it would become wet and slimy and would spoil within a few hours.

In order to eliminate these conditions, 3-500 watt space heaters were installed along one side of the storage room, 6 inches from the wall and 1 foot from the floor. These heaters were supported by brackets which also supported a baffle, which was placed one foot from the wall. The operation of the heaters is controlled by the amount of humidity rather than by temperature.—*C. B. Richardson, Penn Central Light & Power Co., Altoona, Pa.*

Electric Heaters on Gluing Machines

IN the past, manufacturers of paper boxes and containers used what is commonly known as "hot glue." This glue was first cooked, then held at a temperature of 140° to 150° F. during the time it was being used.

With the development of so-called "cold glues" that required no preliminary cooking, a number of these manufacturers eliminated hot glue and changed to the cold type glue.

It has been found that in many cases better adhesion is obtained when the glue is heated. Therefore, some of the paper box plants have installed electric heaters on gluing machines so as to obtain more satisfactory results.

Strip heaters are clamped to the bottom of the glue containers and are controlled by a three-heat switch. The wattage of the strip heater depends on the size of the tank on the glue machine. Generally, tanks ten to twelve inches wide and twelve to eighteen inches long require 300 to 700 watts. This installation was used on non-automatic machines. For quantity production regular automatic machines are often equipped with electric heat.

The advantages obtained by the use of electric heat are as follows:

1. Not necessary to have water jacket on glue tank.
2. No burned glue and uniform heating.
3. Strip heaters easy to install.
4. Heat when and where it is required.—*H. R. Lewis, Jr., Philadelphia Electric Co., Philadelphia, Pa.*

Beverage Bottle Cork Sealing

JUST as the competition of beverage sales had gradually developed new container designs and shipping packages, so there has been an imperative demand for speeding up such operations as filling, labeling, and corking to secure low production cost.

Cellophane (cellulose acetate) has been recently found to possess excellent characteristics for sealing bottles and liquid containers, particularly of small dimensions. This material possesses natural shrink characteristics when heat is applied and thus offers an easy and simple method for applying an individual protective seal against tampering with contents. This method has been applied recently in the bottling of liquors and beverages and appears to be a very simple and inexpensive way to seal without involving patent infringement.

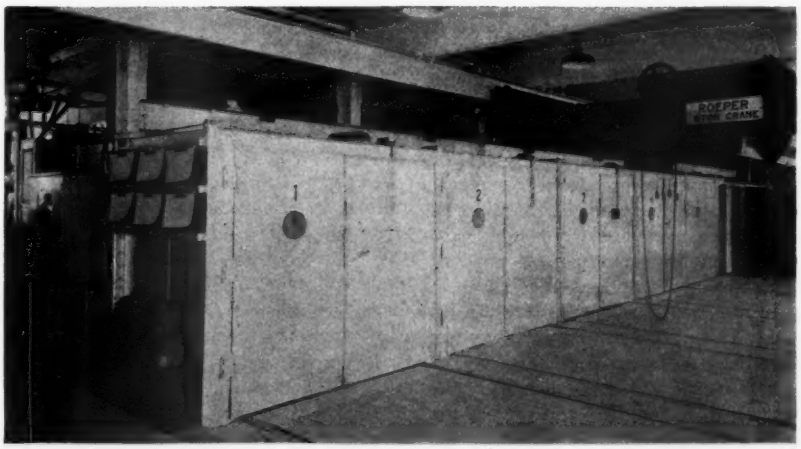
The cellophane is applied to each bottle neck in a damp condition in the form of a tube which is deftly slipped down a given distance and clipped off a short distance beyond the top of the seal or cork, which is practically flush with the outside diameter. The bottle is then carried by conveyors through an electrically heated oven, whose temperature is controlled at the proper value. Rapid drying of the cellophane is promoted by fan-circulated air, which thus causes a natural but large shrinkage of this material. The cork is bound tightly in place by the gluing effect of the drying action. Thus, the cork is effectively sealed without further handling or contact. It is necessary to destroy the cellophane in order to open the package.

A channel type circulation air oven of 15 kw rating has been recently installed in a large distillery in the production line so that the regular conveying belt serves this new sealing feature recently developed for their products.—*M. R. McConnell, West Penn Power Co., Pittsburgh, Pa.*

Electric Heat Essential in the Abrasive Industry

ONE of the outstanding uses for electric heat in industry is for baking abrasive wheels. The basic material is mixed with a bonding material, such as sodium silicate or bakelite, after which the mixture is pressed into the desired shapes and baked. The effect of the heat is to drive out moisture and to oxidize the binder, giving a finished wheel capable of performing those difficult industrial jobs such as "cutting off" steel bars, "snagging" castings, and the like. The usage is severe, and the tool must be good.

Two of the requisites for satisfactory



Abrasive baking ovens. This battery of seven ovens is part of the Norton Company's total of over forty ovens having a connected load in excess of 1500 kw.

baking are circulation of air and temperature control.

Air circulation includes not only the rapid movement of air within the oven but the extraction of a certain amount of moisture and fume-laden air and the admission of an equal amount of fresh air to keep down the humidity and fume concentration. Since most ovens are equipped with fans which create a positive air pressure, the admission and expulsion of air are easily accomplished by manually operated dampers in intake and exhaust pipes. The recirculation of the air within the oven is obtained by fans of various capacities, supplemented sometimes by movement of the work itself.

Temperature control is of vital importance. The treatment of the wheels does not consist merely of raising them to a definite temperature and then holding them there for a specified time, but necessitates adherence to a predetermined time-temperature curve. This curve will vary with the material being baked and with the desires and requirements of the abrasive manufacturer. It may consist of a straight line rise to a definite temperature followed by a hold at that temperature for a period and then a predetermined straight line cooling. Or it may consist of a rapid uncontrolled rise to a point somewhere below 212 degrees followed by a definite rate of temperature increase of from 3 to 7 degrees Fahrenheit per hour. Ultimate maximum temperatures are of the magnitude of 450 degrees to 550 degrees Fahrenheit. The length of the baking period may be as great as 72 hours. For such nice requirements for time-temperature control, electric equipment lends itself most conveniently and economically.

The photograph on the preceding page shows one of the many installations of abrasive-baking ovens. The battery of seven ovens is part of Norton Company's total of over forty ovens having a connected load in excess of 1500 kw.

Above these ovens can be seen the mechanism for continuous rotation of the load during the baking period. The various molds containing unbaked wheels are placed on a circular platform or turntable which is then suspended from a vertical driveshaft at the center of the oven roof. Rotation then exposes the various parts of the load to the same variations of temperatures within the oven, assuring uniform baking. No amount of engineering skill has yet been able to give absolute temperature uniformity within an oven of any appreciable size, as long as the size, weight, and shape of the molds vary from load to load.

Further attempts to approach absolute uniformity are evidenced by large motor-driven fans and by selector switches. This method of selecting one or more of several heater combinations has been developed by Idol Anderson, chief electrician of the Norton Company, and has been very beneficial in regulating the rate of heat input to obtain the desired rate of temperature rise.

At the left of the photograph showing the battery of seven ovens can be seen the multiple recorder which continuously records the temperatures in these ovens, and also the charts which are followed to obtain the desired baking cycle.

In conclusion may we recommend that, where heat is involved, a competent engineer be requested to analyze the application before the decision for any heating medium or equipment is made. Every fuel has its place and electricity its place, but no hard and fast rule can be made to apply to all.—*Howard A. Hands, New England Power Engineering and Service Corp., Boston, Mass.*

Electric Furnace for Exacting Heat Treatment of Tools and Dies

The A. J. Sossner Company of New York City has installed a Hevi Duty Electric Furnace. This furnace is a Wild-Barfield type, rated 4.5 kw, with inside dimensions of 6¾ in. wide x 5 in. high x 14 in. deep, equipped with an automatic control pyrometer mounted directly over the furnace and a magnetic detector mounted on the wall to the right of the furnace.

The A. J. Sossner Co. produces ornamental dies for stamping and embossing metal watch cases, vanity cases and other jewelry articles. Rollers are made for embossing ornaments on silverware, coffee urns and percolators. Stamps for numerals, trademarks, etc., are also manufactured. The dies and rollers used for this work are necessarily of the highest grade and workmanship. It therefore follows that the subsequent heat treatment must preserve the intricate designs and be capable of producing the best qualities obtainable from the alloy steels used.

It is here that the electric furnace is used for hardening and tempering. It is successfully performing this work because of the close temperature control obtainable, thus preventing harm to the die surfaces. The work is thoroughly and uniformly heated.

The magnetic detector indicates to the operator when the critical point of the steel is reached and if the analysis of the steel is such, it is quenched at this point; if not, the detector provides an accurate index from which subsequent operations can be conducted. With the use of this detector the correct quenching point is established, thus eliminating any guesswork.

When the steel is hardened, partial brittleness and internal stresses are set up. To relieve these conditions a drawing or tempering operation is performed.

In order to secure uniform temper it is imperative that a uniform and accurately controlled temperature be maintained.

The performance and life of the dies depend on the material and heat treatment. Many users have reported as many as 2,000,000 impressions from the dies treated in this furnace.

The operating temperature range of this furnace is from 250 deg. F up to 2000 deg. F. Any temperature in this range can be automatically held by the temperature control instrument.—*S. Bennis, The New York Edison Company.*

F.T.C. Attorney Answered

(Continued from page 162)

Federal Trade Commission's record shows that Colonel Chantland's testimony relating to this Peabody Coal Company was unfair. (The Mr. Bass referred to was the examiner of the Federal Trade Commission who had investigated this company.)

Mr. Chantland: So the record may show we have not overlooked it, Mr. Bass, you will recall that when this inquiry was started intimation had come to us, which we supplied to you, that as a result of this Peabody ownership and the contracts, it was thought that the Peabody Coal Company was billing, and the utilities interests were permitting coal to be billed to them at a dollar or two per ton over cost, so as to make the utility costs high; you will recall that fact?

Mr. Bass: Yes.

Mr. Chantland: What did you find on that point?

Mr. Bass: I did not find anything to that effect. If such an unusually high price was paid, it might have been for a specially prepared gas coal, and that constitutes a very small percentage. The highest price paid by any of the utilities on the cost-plus contract was not over $2 a ton.

POWER SALES ITEMS

AIR CONDITIONING

"Big Air Conditioning Market," by K. C. Porter, Commonwealth Edison Company, Chicago. Electric Light and Power, February, 1935, pp. 24-26. Bennett-Watts-Haywood Company, Publishers, 360 North Michigan Avenue, Chicago, Ill.

A general review of the possible market for air conditioning set forth in conjunction with personal experience and pointing out the growth of this load and the potential revenue involved.

"Air Conditioning Arrived in 1934." Electric Light and Power, March, 1935, pp. 20-23. Bennett-Watts-Haywood Company, Publishers, 360 North Michigan Avenue, Chicago, Ill.

A very comprehensive survey of air conditioning programs in the territories of twenty-nine large companies covering nearly all of the major activities in the United States. An excellent survey of what has been accomplished in the air conditioning market during the past year.

"Diffusion of Conditioned Air," by L. R. Lewis. Heating, Piping and Air Conditioning, March, 1935, p. 138. Keeney Publishing Company, 6 North Michigan Avenue, Chicago, Ill.

Drafts and other results of faulty air distribution are probably the most common causes of complaints about both winter and summer comfort air conditioning.

BREWERIES

"Air Conditioning in Breweries." Heating, Piping and Air Conditioning, April, 1935, p. 193. Keeney Publishing Company, 6 North Michigan Avenue, Chicago, Ill.

Proper air control in fermenting room results in a better and more uniform product.

COMMERCIAL COOKING

"National Commercial Cooking Survey." Electric Light and Power, April, 1935, pp. 29, 30 and 32. Bennett-Watts-Haywood Company, Publishers, 360 North Michigan Avenue, Chicago, Ill.

Survey of commercial cooking sales policies and activities in fifty-four utility companies representing all parts of the country. Reports of several representative companies are detailed, bringing out their policies and accomplishments during the past few years. Some important conclusions are drawn from the survey.

DIESEL ENGINES

"California, Missouri, Selects Diesel Engines for New Municipal Plant." Southern Power Journal, April, 1935, pp. 38-39. W. R. C. Smith Publishing Company, Grant Building, Atlanta, Ga.

A brief description by the consulting engineer of the installation in this Missouri city which was financed by the PWA.

"Murphy Diesel Company, Ltd., Announces New Diesel." Diesel Power, April, 1935, pp. 216-218. Business Journals, Inc., Publishers, 192 Lexington Avenue, New York City.

This article describes the new Murphy Diesel which has an economical range of 100-150 hp.

"The Stearns Diamond Diesel." Diesel Power, April, 1935, pp. 239-241. Business Journals, Inc., Publishers, 192 Lexington Avenue, New York City.

A detailed description of the opposed piston Diamond Diesel as developed by Frank Ballou Stearns.

"Municipal Plants." Diesel Power, March, 1935, pp. 154-162. Business Journals, Inc., Publishers, 192 Lexington Avenue, New York City.

Diesel installations in California, Missouri; Gowrie, Iowa; and Remson, Iowa, are discussed. Historical background and present rates are given.

"An Engineer's Reaction to PWA Policies," by C. F. Lambert, Burns & McDonnell Engineering Company. Diesel Power, March, 1935, p. 152. Business Journals, Inc., Publishers, 192 Lexington Avenue, New York City.

The author feels that PWA has not been liberal in grants to municipal power plants. Examples of negotiations and results are cited. PWA activities have resulted in utility baiting in many cases.

"Office Building Diesel Power Plant Pays for Itself and Shows Surplus." Diesel Power, March, 1935, p. 163. Business Journals, Inc., Publishers, 192 Lexington Avenue, New York City.

A report of operations at No. 1 Park Avenue, New York City, for 1934, showing total production and fuel, lubricating oil and maintenance costs. The report compares the above with purchased power costs for equivalent service, but does not vouchsafe a "net savings" figure.

ELECTRIC FURNACES

"Electric Furnace for Special Alloys." Steel, April 15, 1935, p. 60. Penton Publishing Company, Penton Building, Cleveland, Ohio.

High frequency induction furnace makes possible the production of special alloys in less time and at lower cost.

ILLUMINATION

"Finds Most Industrial Plants Require Improved Illumination." Industrial Standardization, March, 1935, p. 55.

Survey in 26 states shows factory lighting requirements have declined during economic depression.

"Combines Beauty and Utility in Auditorium Lighting," by A. L. Powell, Supervising Engineer, Incandescent Lamp Dept., General Electric Company. Electrical World, March 16, 1935, p. 24. McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York City.

Describes the auditorium lighting in the "House of Magic," New York. Tubular Mazdas and hot cathode gaseous-conduction lamps have been combined in cove lighting to produce beautiful color effects and yet achieve white light at the seat level.

INDUSTRIAL HEATING

"Industrial Power and Heating Notes." Electric Light and Power, February, 1935, p. 44. Bennett-Watts-Haywood Company, Publishers, 360 North Michigan Avenue, Chicago, Ill.

Four short articles together with photographs of interesting installations on industrial electric heating.

POWER COSTS

"Segregating Costs of Power and Process Steam in Industrial Plants." Southern Power Journal, April, 1935, pp. 28-31. W. R. C. Smith Publishing Company, Grant Building, Atlanta, Ga.

This is an article complementary to a similar cost story in the December issue of the magazine. The author undertakes to present a simplified method of segregating power and processed steam costs.

POWER SALES

"Recovery Summary in the Markets." Electrical World, March 30, 1935, pp. 736-751. McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York City.

This issue of the Electrical World includes a summary of the opportunities for increasing power sales in many fields. The analysis which is given is based on an expansion of 10 per cent of the total market in two years. Figures are given in each case, showing the amount of money estimated to be spent for electrical equipment and wiring, the kilowatt-hours of energy increase and the estimated additional revenue per year. The summary covers household appliances, electrified farms, motor and power equipment, industrial heat equipment, transportation, small light and power business, and the lighting market. The responsibility for taking advantage of an opportunity of this magnitude rests with "the customer to act on his wants; the industry to promote the business; the utility to build conservative business; manufacturers, wholesalers, contractors and retailers to swing into sales action and the government to encourage the whole movement and permit the industry to carry out the program."

REFRIGERATION

"Refrigeration Machinery Motor Drives and Control," by R. C. Allen. Power Plant Engineering, April, 1935, p. 236. Technical Publishing Co., 53 West Jackson Blvd., Chicago, Ill.

Pumps, fans and compressors have different characteristics which must be considered when buying motors.

WELDING

"Arc Welding Chromium Iron and Steel." Metal Progress, April, 1935, p. 33. Metal Progress, Publishers, 25 West 43rd Street, New York City.

Welding technique and properties of welds, as applied to stainless and chromium steels.

Falls of Persons

(Continued from page 164)

Since it is generally conceded that accidents can be blamed upon the existence of hazardous conditions or the following of unsafe practices, it must be equally true that accidents can be prevented by the elimination of hazardous conditions and the development and enforcement of safe practices.

In order to prevent *falls,* team work between employer and employee is necessary. The employer must provide such mechanical guards as railings, toe boards, and safe treads on stairways; he must maintain structures such as floors, roofs, and stairs in such condition that they will not fail under ordinarily expected strains; he must provide and maintain suitable safe climbing equipment. But the most important contribution that the employer can make to the prevention of *falls* is the development and enforcement of safe practices applicable to his particular needs.

On the other hand, the employee must recognize the fact that he and his family are the chief beneficiaries of a successful accident prevention program, and that he must do his part by acquiring and using safe working habits.

In order to check up on the efforts of both employer and employee, a system of inspections should be established. In order to be most effective, the inspector's recommendations for the removal of hazards should be carried out as soon as possible, and where the inspector finds unsafe working practices being followed, safe practices should be developed, taught and enforced.

The problem of the prevention of *falls* is not as difficult to solve as it may appear to be on the surface. When accidents of this type are grouped according to types and causes, the types are so comparatively few and the causes so strikingly similar that educational efforts may be kept within a relatively narrow field. This makes it possible to so simplify the training that it is easy for even the least intelligent person in the group to absorb the knowledge that is necessary in order to prevent him from injuring himself in an accidental fall.

NOTE—*The author desires to give credit to Howard K. Cook of his staff for collaboration on this article.*

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CONVENTIONS AND MEETINGS

MAY

1-2 Chamber of Commerce of the U. S. A., Washington, D. C.
13-16 National Fire Protection Association, Atlanta Biltmore Hotel, Atlanta Ga.
19-24 National Electrical Manufacturers Association, The Homestead, Hot Springs, Va.

JUNE

3-6 EDISON ELECTRIC INSTITUTE, Hotel Traymore, Atlantic City, N. J.
17-18 Accounting and Business Practice Section, Northwest Electric Light and Power Association, Portland, Ore.
19-21 The American Society of Mechanical Engineers, Hotel Gibson, Cincinnati, Ohio.
24-26 American Society of Heating and Ventilating Engineers, Toronto, Can.
24-27 National Association of Cost Accountants, Statler Hotel, Boston Mass.
24-28 American Society for Testing Materials, Book Cadillac Hotel, Detroit, Mich.
24-28 American Institute of Electrical Engineers, summer convention, Ithaca, N. Y.
26-28 Canadian Electric Association, Algonquin Hotel, St. Andrews-by-the-Sea, N. B.

SEPTEMBER

18-28 National Electrical and Radio Exposition, Grand Central Palace, New York.
23-27 American Transit Association, Atlantic City, N. J.

OCTOBER

14-18 National Safety Council, Louisville, Ky.

It Is Suggested That

CONVENTION RESERVATIONS

Be Made Early